

Why industry has failed to attract engineering students Emigration takes its toll

by Owen Surridge

Too many engineers probably were being produced rather than too few, a seminar on graduate employment organized by the Institute of Manpower Studies was told last week.

The apparent shortage arose because too few were going into industry. Some did not practise as engineers at all; some emigrated; and some were unsuitable for industrial jobs, mainly because they had no skill in communication.

In a survey of the supply of qualified people Mr Bruce Laidlaw, an economist employed by the Manpower Services Commission, said bluntly: "There is no shortage of engineers qualifying, although the number of non-graduate entrants has dropped drastically. Whether they are going into industry is another question. Some are going into accountancy and a lot are going abroad."

That the shortage of practising engineers was real enough was confirmed by those industrial representatives present, one of whom complained that a large proportion of qualified engineers were handicapped by lack of social skills.

"They are bad communicators," he said. "I would rather employ an adequate technician capable of expressing himself than somebody

brilliant who couldn't get his message across."

Mr Laidlaw said that in all major areas of study it had become easier to get into a university and notably so in the sciences. He did not find this surprising. "After all, the universities were expanded by relaxing standards of entry."

Changes in graduates' attitudes to careers were reported by Mr Geoffrey Prior-Woodhouse of the Sussex University appointments board, who said there was a new and disturbing element. "More and more young people are saying there is not much of a future in Britain. They feel they must get out while the going is good. I do not know if this attitude will grow but there are very worrying implications when the most able people think like that."

Another new factor was the number of graduates who deferred career decisions and took a year off. "They see themselves as having been processed through a number of examinations without a break from education and they do not want to rush into anything. This is understandable and employers will often accept it providing they have achieved something in that period."

Among graduates there was still a marked reluctance to enter industry, however. "They just don't see manufacturing as a useful or worth-

while occupation, although there is some evidence that this may change. The desperation of the situation is beginning to get through but there is a long way to go and we must do something to change their views."

University appointments advisers must prepare graduates to make their own decisions and to understand the consequences.

He called on employers to provide more worthwhile vacation jobs which would offer genuine industrial experience.

Employers' mixed motives for employing graduates were underlined by Mr Richard Pearson of the Institute of Manpower Studies research team, who said that few firms measured the performance of graduates they had taken on.

"All firms recognize that graduates are a special part of the labour market but it does not follow that they are regarded as an elite within the organization. The degree only matters at recruitment. Afterwards educational qualifications are of little significance in the progress of a career. Personal qualities are much more important."

Some firms complained that the number of high-flyers was decreasing, he said, but this was a confusion caused by the large number of graduates. "The number of high-flyers is probably the same as it was. It is just more difficult to find them."

Link local institutions in 'collegiate university'

by Frances Gibb

A total reorganization of further and higher education, under which all institutions in any one area would be merged as a comprehensive, collegiate university, has been called for by Professor Robin Pedley, head of the education department at Southampton University.

He told a meeting of the Workers' Educational Association at La Sainte Union College of Higher Education, Southampton, last week that only under such a system could the essential freedoms of students and teachers be preserved and proper accountability be introduced.

In the whole of England, 100 comprehensive universities, with an average size of 8,000 full-time and 10,000 part-time students could replace "the present unplanned assortment" of universities, polytechnics, colleges and institutes of education and higher education and more than 800 other major establishments of higher education, he said.

Everyone over 18 living in the area would automatically be a member, although some would be active and some entirely passive. "What this comprehensive institution of adult education should aim at, therefore, is to have sufficient breadth and variety to satisfy all citizens, whether they be brilliant philosophers or illiterates."

Every need and level of adult education, including, for instance, literacy and numeracy, should be catered for. Local education authorities and the Department of Education and Science would relinquish control, retaining only a minority if influential role.

"At the heart of the proposal is the idea of a new kind of college, one which would be a mixture of the best of the old."

Professor Pedley said that the majority of colleges were human and educational sources which would be lost if the college system was destroyed. Education for the 19th group should take place in six forms: should be comprehensive and admit both full-time students. This stage would remain under local authority control and be distinct from the final stage of comprehensive adult education.

The colleges of further education would then provide the basis of a comprehensive system of adult education linked with the rest of the educational system in the area.

Arts Council plans education officers in drama, music

The Arts Council is planning to have education officers in drama, art, literature and music departments as soon as funds will allow.

Mr Roy Shaw, secretary general of the Arts Council, writes in his annual report for 1975-76. Mr Shaw said that the council had completed its first year as a statutory body and has just received its first year's declaration in Lord Redcliffe-Maud's report that the arts and education should be brought closer together.

But links should also be established between the Arts Council and education generally to help the council achieve its designated task of improving knowledge and understanding of the arts, he writes. There should also be co-operation between the Arts Council and broadcasting organizations.

A balanced future policy for the Arts Council will not only ensure that the best of traditional arts reach a much wider audience, it

will also foster, even more than already does, experimental and more unconventional work, always subject to careful scrutiny of what is being provided."

Mr Shaw also urges more government spending on the arts. The Arts Council grant for 1976-77 was £28.85m, 35 p. more than the year before. Out of this, the Scottish Arts Council received just over £2m and the Arts Council nearly £2.5m.

Lord Gibson, the chairman, wrote in the report that in the past years the Arts Council's role had been largely confined to raising the profile of the arts while trying to establish initiatives.

The Arts in Hard Times, the annual report and account of the Arts Council of Great Britain, London W1V 0AL, £1.50p (including postage and packing).

British Council offers Eastern bloc exchanges

The British Council is inviting academics at universities, polytechnics, and colleges to apply for scientific, technological, and agricultural exchanges under cultural agreements with the Soviet Union and Eastern European countries.

The agreements provide for short visits of about two weeks and medium term research visits of several months to the Soviet Union, Czechoslovakia, Hungary, Romania, Bulgaria. Scholarships are also available for visits of up to one academic year.

Minority Rights Groups

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Safeguards for genetic experiments criticized

by Frances Gibb

Strong criticism of the Health and Safety Commission's proposals for safeguarding genetic manipulation experiments have been made by the Association of University Teachers and the Association of Technical, Scientific and Managerial Staffs.

Mr John Akker, deputy secretary of the AUI, said the proposals would be a "disastrous" mistake to put in the commission's hands the responsibility for the compulsory notification of experiments in the Health and Safety Executive was unworkable.

In its commentary on the commission's document, the AUI expressed concern that the definition of experiments to be notified is so broad as to deter university research.

All work in the genetic manipulation field, including that which has proved unproductive, would be notified to the Health and Safety Executive. At AUI, said the union, this would include work such as the selection of the best strain of yeast.

In its evidence to the commission, the ASTMS says the definition of notifiable experiments includes some which present no hazard at all. "We are concerned that this would bring the regulations into disrepute by its impracticability."

The AUI is also concerned that by making notification compulsory, the commission is setting a precedent for Government interference in university work. "The implications are simply huge. Although the commission has acted for the best motives, the AUI has appealed to

them to think again," Mr Akker said.

The union had received representations about the proposals from a large number of academics, both within and outside the field, including leading scientists and heads of departments, he said. Some were expressing doubts as to whether they should have made public the possible consequences of their research. Three lecturers had written to the Secretary of State for Education saying the proposals would deter them from discussing the implications of their research in the future.

The ASTMS expresses dissatisfaction that there are to be two bodies concerned with experiments in genetic manipulation. It is proposed that there will be a central advisory body under the DES, the Genetic Manipulation Advisory Group (GMAAG), which would supervise and advise on all experiments voluntarily notified to it. There will also be the Health and Safety Commission to which all experiments are to be notified compulsorily.

The union proposes that the CMAG come under the Health and Safety Commission rather than the DES, with powers under the Health and Safety at Work Act. All notification would then be to CMAG.

Categories of experiments should be approved or not notified. Approval would not be given where there was not a properly constituted committee. Both unions have submitted their comments to the TUC.

Colleges up in arms over CNA new degrees report

by Judith Judd

A mixture of indignation and readiness to acknowledge that changes were needed greeted the publication this week of a report severely criticising new degree courses at colleges of higher education.

The report, prepared by the Council for National Academic Awards, discloses the concern that staff planning to teach the new BA courses, many of their former college of education lecturers, lack the skills and experience to do so.

It also suggests that the universities, which have validated most of the new BA(Hons) than the CNA, may be less stringent in their validation of courses, though it points out that this may be because they retain greater control of courses after validation.

Mr John Williams, principal of Padgate College of Higher Education, Warrington, which has four BA courses validated by Manchester University, said he was angry about the report. "The universities are too stringent in their recognition. It has an observer present at all their visits for staff. There are 90 tutors on the staff, 10 who do not have the BA, and really being asked to move outside their area of competence."

It must be stated that some of the departments found in the larger do not clearly have the full range of expertise in the subject areas in which they are expected to teach.

Proposals were sometimes over-ambitious. Others appeared to have "no discernible rationale". The threat of redundancies had made colleges try to do too much too quickly.

Manpower training promise

The Manpower Services Commission promises close cooperation "but not interference" with colleges and schools and their courses, Mr J. S. Cassola, its director, said this week.

Introducing a new statement of the commission's policy, he said it had to get very close to the Department of Education and the education service at all levels. For examining jointly with the engineering institutions recruitment to industry of qualified technologists.

According to the new statement, "Towards a Comprehensive Manpower Policy", one of the commission's main tasks is to help raise the levels of knowledge and skill in the workforce to ensure that young people have sufficient preparation for their working lives. Too many school leavers lack

basic skills and were ignorant of the world of work.

The commission proposes to provide better labour market information of practical help to careers teachers and the careers service; to support the development within employers of courses; to encourage employers to provide appropriate opportunities for new workers who have taken special training courses, especially through the industrial training boards; and generally to foster links between industry and education.

The document proposes a shift in the emphasis of the Training Opportunities Scheme, which could have serious consequences for the further education colleges involved in it. In future, special priority within TOPS should be given to people training in those skills where shortages during times of industrial expansion are to choke off progress.

Literacy students doubled-agency

by Sue Reid

Nearly 100,000 adult students in England, Wales and Scotland are now receiving literacy tuition, almost double the total six months ago, according to the Adult Literacy Resource Agency.

The latest numbers were released this week alongside the agency's first annual report which showed that in February 55,000 adult learners were being taught to read and write, compared with less than 10,000 immediately before the agency was established by the Government in March 1975.

The report reveals the results of a sample survey carried out among 6,500 students in 1975-76. This indicated that 67 per cent of the adults seeking help were men and that the majority of literacy students were aged between 21 and 40. About 17 per cent of the men were unemployed and most of the students left school at 16 or under.

But the report adds: "We are very much aware that the great majority of students who have come forward are over 21. We wish we

could feel satisfied that this indicates that those between 16 and 21 are wholly illiterate. We fear this is not so."

The student questionnaire indicated that about 7 per cent of adult literacy students were under 18 and at least 17 per cent under 21.

The ALRA firmly rejects the view that adults seeking help are lacking intelligence. The report says: "There is no correlation between intelligence and literacy skills."

Commenting on the response from the public the ALRA says that in February more than 44,000 volunteer tutors had been recruited. In the first year of the agency's operation more than 1,000 full-time and part-time teaching staff were employed in adult literacy in England and Wales in addition to 379 full-time and part-time coordinating tutors.

But the report suggests the introduction of an accepted qualification or training course for adult literacy teachers. It says: "While we would urge caution in designing such a qualification too quickly it is clear

that consideration should now be given to establishing some criteria."

The Government grant of £1m for the year 1975-76 was speedily allocated to 114 local authorities and 93 voluntary organizations, says the ALRA. A framework of provision was now established in every local authority area in England, Scotland and Wales.

The first need when the literacy campaign was started was to increase the cadre of professional staff available for training and tuition and, through them, to enlarge the tuition task force. The tuition offered to students had to be relevant to adults and needed to recognize that they already had considerable experience of the language and should not be "put through the juvenile sieve that had failed before."

In England and Wales 62 authorities provided an officer responsible for the administration of their adult literacy campaigns and adult literacy organizers. A further 54 authorities appointed full-time organizers from their own funds or seconded full-time staff from other duties.

Edinburgh to withdraw from NUS

by David Walker

Students at Edinburgh University voted last week to withdraw from the National Union of Students, joining Strathclyde, Glasgow and St Andrews universities outside the organization.

About 40 per cent of Edinburgh's 10,000 students voted by a majority of 120 to disaffiliate, spurred, a spokesman for the NUS claimed, by a leaflet circulated on the morning of the poll which said the NUS gave money to the IRA.

Even by the standards of student politics the voting was confused, with many students expressing a variety of views. Mr Tim Davies, senior president of the students' association and a member of the Conservative Party, was in favour of remaining within NUS, along with members of the "Broad Left" coalition and some of the student Scottish Nationalists.

It seems unlikely that students at Aberdeen, Stirling or Dundee will follow the example of Edinburgh, though if the opponents of the NUS at Heriot-Watt gathered enough steam it seems they could be successful.

Observers of student politics say the anti-NUS movement springs less from nationalist sentiment than from the inability of NUS supporters to put their case and the consensus stand on the issue taken by the Conservative students' associations which are strong in most Scottish universities.

The view from the Scottish headquarters of NUS is that there has never been a student union which disaffiliated and did not return to the fold. None the less, there is the example of Glasgow University students who did not join the NUS after the break-up of the former Scottish Union of Students in the late 1960s.

Support for Conservative students who argue in favour of the NUS came this week from Mr William van Straubenzee, MP, a former Minister of State for Education. He criticized industrial firms which had put money behind the new British Student Association, the body that has set itself up as an alternative to the NUS.

He said: "Mrs Thatcher has specifically, and in my view most wisely, urged all Tories to get stuck into their respective trade unions and professional organizations. She has gone one of her way to commend Tory students for the way in which, particularly in the past year, they have taken part in student politics. It follows that the foundation of a breakaway student movement, however it is named, runs directly counter to Conservative policy."

A plea for more Government spending on training for school-leavers and further education came last week from Mr Peter Ashby, deputy president of the NUS, at Manchester University student conference. He added that the case for closer links between industry and education was diminished when industry was controlled by private interests.



Mr Eric Robinson

Dr Rosworth

New faces at CNA

Mr Eric Robinson, principal of Bradford College, has been appointed a member of the Council for National Academic Awards.

Also newly appointed are two polytechnic directors, Dr G. S. Bosworth, of Newcastle (a former member of the University Grants Committee), and Dr D. W. R. James, of the Polytechnic of Wales. Dr S. W. Smeethurst, director of Birmingham Polytechnic, has ceased to be a member of the CNA.

Another new member is Mr William Cutcliffe, director of complementary studies at the University of Aston. He is already chairman of the CNAA Combined Studies (Humanities) Board.

A full list of the new members of the council is not yet available by the end of the month or two places remain to be filled.

The Prince of Wales has succeeded his father as president of the CNA. He was installed and received an honorary degree of Doctor of Letters at a congregation ceremony in Edinburgh last month.

He then conferred honorary degrees on Professor Kenneth Alexander of Strathclyde University; Lord Clydesdale, the Lord Lieutenant of Lanarkshire; Professor William Hoskins, emeritus professor at Leicester University; Mr Godfrey Hounsfield, head of the medical systems section of BMRB's central research laboratories; Miss Thea Musgrave, the composer; Sir Alastair Pilkington, chairman of Pilkington Brothers Ltd; and Dr Frank Winton, emeritus professor of pharmacology at London University.

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How to apply

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CCETSW

Please send me information about courses of training for work in
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ACADEMIC DEVELOPMENTS

Make your own film
offer by Bulmershe

by Judith Judd

Bulmershe College of Higher Education,
Reading, is offering a new
ordinary BA degree, or a degree
with honours in combined studies,
from next September. The three-
year course gives the opportunity to
explore one area in depth through a
major course while following a second
interest in a minor course.Major courses are offered in film
and drama studies, organizational
behaviour and regional development
studies. A student will take one of
these, plus one minor course in British
history, French, German, social
biology, theatre and cinema, and
United States studies. Major and
minor courses in English literature
await validation by the Council for
National Academic Awards, and it is
hoped they will also start in autumn,
1977.The major course in film and
drama, which the college says is
unique, will combine critical and
creative activities including basic
film-making.The organizational behaviour
course is aimed at undergraduates
who want careers in management or
administration, and offers study of
different organizations. The regional
development studies course will look at ways in which levels of
human welfare vary from place to
place.Mr Jim Porter, the college's
principal, said the courses aimed
to attract those who were com-
mitted neither to the type of
highly vocational course offered by
the polytechnics nor to the academic
specialization of the universities.He said the course combined
original fields with familiar disci-
plines with an emphasis on new
approaches to learning which stu-
dents were unlikely to find else-
where. There was also a more
realistic preparation for a future
where people would probably have
to change jobs more.This year, Bulmershe has a
visiting playwright, Mr Tod White-
head, who is paid by the Arts
Council. Mr Whitehead, whose
plays include *The Four Seasons* and
Alpha Beta, said the appointment
was a great opportunity for a
writer like himself who was serious,
radical and "not a socialist". He
had a chance to work on another
play without any financial worries.Of great importance to him,
contact with students but he
found it hard to encourage them
critically.The course will be taught by
the university's science staff, who
will involve examining case studies
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society at
Edinburgh

by Frances Gibb

The role of science in society is
the subject of a new BA degree
course starting at Edinburgh Uni-
versity next October. Students will
relate a specialist science discipline
to its social context and explore the
social nature of scientific know-
ledge.Its central theme is the analysis
of science as a social institution. It
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Don's diary

Con Fidel

The start of a new academic year.
The time it's to be launched in
grand style with the inauguration
of a prestigious new vocational
school in Cambridge by Fidel Castro
himself.He arrives late to a thunderous,
hoarse welcome from the
school's students, their parents, the
builders of the school and local
cadres. A popular leader, he is
especially revered by the young
as they relate easily to his re-
laxed manner, lack of formality and
to the interest he shows in them
as a group. He visits schools and
universities regularly, often tak-
ing note of their comments and
agreements which he always follows
up.When the applause dies down he
begins to talk. Quietly at first, tug-
ging nervously at his beard and micro-
phone, his voice has a reedy, pen-
etrating quality, demanding atten-
tion. Dressed, as usual, in green
army fatigues, it is impossible not
to be impressed by his bearing not
affected by his presence.In the past he has used occasions
such as this to announce changes
in the direction of the revolution
and to throw out ideas as to how
to assess the response of the people.
This one is no exception. Begin-
ning with an historical analysis of
educational trends during the revo-
lution, from the successful upgradi-
ng of the quality of education, he goes
on to frankly state the problems
being faced.As a source of information his
speech is excellent. He assesses the
efficiency of the education sector
over recent years through various
indicators: positive factors like per-
centage of school-age children
attending schools, and graduation
rates—all high—as well as the dis-
parities of attendance between
boys and girls and between town
and country.Cuba like many other Third
World countries is experiencing
problems through the expansion of
its education system. Leaving aside
students' expectations of a univer-
sity career of their choice, the fact
remains that in spite of one of the
highest per-capita allocations for
educational provision in Latin
America, supply has not met the
need. In addition to the extensive
school construction that one sees
all over Cuba, secondary educa-
tional buildings are being put up
in the country and more large
houses brought into the system in
towns. It still isn't enough.There are over three million
people, Fidel tells us, about a third
of the population—about 10 million
school students—beginning courses
this September—700,000 of them
in secondary education. With
that kind of pressure on resources
there is simply not the space avail-
able to send every child to one of
the model schools in the country
that combine work with study. At
the moment, the system univer-
sally and not always in those sub-
jects that reflect the skilled man-
power needs of the country.The solution, he says, is to be
found in the concept of "enrolment
for my life" which is based on
the student's record and there-
fore their chance of following a uni-
versity course. In the universities,
he stressed, there is to be a
greater influx of raw than before.
Students will only be allowed to
continue a course if they can main-
tain a consistently high standard,
a system which, despite
student objections when it was
first mooted, has been imple-
mented in the new.I was intrigued by this part
of his speech, and conjectured as to
the kind of selection process he
envisaged. Surely, not the crude
selection based on exa-
mination results shown to be
inefficient in our own system? In
a socialist society one expects
quite different priorities when it
comes to the allocation of scarce
resources, especially where, as in
the case of Cuba, a new society is
being built and new values gener-
ated. Perhaps political criteria will
be based on the student's atti-
tude to society's needs. Or some-
thing towards the underprivileged.I do not say, then, that I am a pure
man.
I will not tell you that everything
is the contrary.
That I love (women, naturally,
for my love can speak its name)
and like to eat pork with potatoes,
and chick peas and sausages, and
eggs, chicken, lamb, turkey,
fish and clams;
and I drink rum and beer and
brandy and wine
and fornicate (even on a full
stomach).I am impure, what can I say?
Absolutely impure.The whole poem can be found
in English in *Pedra o Muerte*:
The Great Zoo & Other Poems, by
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Absolutely impure.The whole poem can be found
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Nicolas Guillen, Habana, 1973.reminding us of the three-year-old
travelling salesman.
I am greatly moved by Allende's
last message to Chile: barely
audible at times, distorted by a
bad telephone line, made while
under attack at the Moneda Palace.
From the passion and defiance in
his voice I can understand every
word.

Poder Popular

The crisp-shirted young men in the
gardens of our hotel sporting hefty
walkietalkies alerted us that some-
thing was "going on". It did not
take us long to discover exactly
what it was. Cuba's ambassadors
from throughout the world had all
been recalled to Havana to report
on their country's priorities in the
new future. They were meeting
in the ballroom of our hotel where,
in earlier times, pubescent girls
celebrated their "coming out" in
long ball gowns. Today, the order
of dress for the ambassadors, all
men, is the *guayabera*, a long,
square-cut, multi-pocketed cotton
shirt; cool and practical for the
climate.It is a real pleasure to come
across Lisandro Otero, until recently
the energetic cultural counsellor in
London. In spite of being tied up
with the ambassadors' meetings—it
was because of his promotion that
he returned to Cuba—and massive
new responsibilities in Cuba's
foreign office, he arranges a meet-
ing over lunch.We meet at La Torre on the
thirteenth floor of a vast apartment
block completed just before the revo-
lution and so scarcely enjoyed by
its United States owners. I had
been here at night and enjoyed the
whole of Havana laid out in lights
at my feet but the view was even
more impressive by day. On one
side it was possible to see the moun-
tains of Pinar Del Rio, in the next
province, just visible in the dis-
tance; and on the other overlook
the Morro Castle, scene of the vic-
torious commando raid by the Eng-
lish in 1762 that gave us possession
of Cuba and a lucrative trade before
trading the island—actually, anarchipelago—back to the Spanish a
year later.We catch up on one another's
gossip over the mojitos, saving the
hard stuff for over lunch.Popular Power, the new decon-
centrating, participatory form of gov-
ernment, dominates our conversa-
tion. In the first years of a revolu-
tion, not just our revolution, any
revolution, Lisandro explains, be-
cause the bourgeois state apparatus
is still very much intact, power can
only be entrusted to a few. That is
why, in the case of Cuba, the decision-
making was centralized around Fidel
Castro. Now, through Popular Power,
the whole country is being entrusted
with the task of

Dundee 'unicorn' is vision of future for college librarians

The future looks tough for college education librarians who gathered at Windermere last week to discuss their plans and problems. Because of the economic crisis they face the prospect of an ever-dwindling supply of books and resources. Their difficulties are further compounded by the current pressures on colleges of education.

As Mr Donald Davidson, chairman of the Council for National Academic Awards librarianship board, told the 80 people at the conference, many college libraries, especially smaller ones, are not capable of sustaining the courses which colleges are now putting forward in their attempts to diversify.

The librarianship board had worked well until the reorganization of colleges. Mr Davidson said. Now they were faced with a host of problems. He did not blame the librarians for all these. "Criticisms of the library are often based on the way in which developers of courses have been profligate with resources they haven't got," he said.

The CNAAs now had to validate courses in 115 individual colleges, the smallest with a library budget of £750 and 4,000 volumes, the largest with a budget of £300,000 and 400,000 books. The days when CNAAs could say after a visit "you need more books" was another matter. Now they had to say "£10,000 on books and while you are about it try to get a new building" were gone.

The CNAAs are so worried about the difficulties arising over college education librarians that it has set up a working party to look at them. Mr David Francis, the Council's assistant registrar (education), said people had to remember it was part of the CNAAs' brief to ensure that its degrees were comparable with those of universities.

Colleges of education have to be looked at as free-standing institutions which cannot rely on the back-up of universities any more. Mr Davidson also wanted to dispel the myth that the council is being unreasonable in its demands. "Which some librarians clearly believe. Is it not time, one speaker asked, that the CNAAs' bluff was called over resources? The CNAAs, Mr Davidson assured him, was not bluffing. Simply maintaining standards. He wanted: "I may have to come to the point where we have to say to colleges, go away, you will have to think again."

Less drastic solutions may be possible. Mr Francis suggested that some degree proposals might be fine-tuned taking into account their library resources. Colleges might have to develop on their strengths instead of more general degrees. In some cases it might be possible to redistribute resources to the library after a CNAAs warning.



College of education librarians: dilemmas ahead.

Mr Davidson knew of a polytechnic with a "shocking library" where £150,000 was being spent on internal research projects, spending money to send people to London to read other people's books, as he put it.

Whatever happens, the librarians see dilemmas ahead. What was a librarian to do, asked one speaker, when it came to certifying that a library could support a particular course? How were the duties of honesty and that of support to his institution to be resolved during a CNAAs visit?

Beside these harsh economic realities the new resources centre at Dundee College of Education, combining books with the latest ideas in educational technology, is a vision of the future of which few librarians now dare to dream—"a living unicorn" as one conference member described it.

Mr John Clarke, the college's coordinator of learning resources, told the conference the centre was an experiment in "individualized learning". It was built with the aim of encouraging students to work on their own.

Because of it, one fifth of the students' time in Dundee, or one hour a day, is spent in such study. "Carrels" in the library with a "learning package" to guide him and use tapes, slides, filmstrips or television prepared for him by his lecturers.

Mr Clarke has about 30 staff including printers, photographers, composers, graphic artists and a television producer. He said there had been difficulty in persuading some of the lecturers to take part—they saw the centre as a threat to their status—but he believed all the difficulties could be overcome by a small number of committed individuals working together.

How much did it all cost? The audience wanted to know. Mr Clarke and the college librarian, Mr Bryan Gill, reckoned that the cost could be about 6 or 7 per cent of the

college budget. Mr Clarke pointed out that some of his staff had other jobs in the college as well.

Not everyone was envious of the impressive array of hardware revealed in Mr Clarke's slides. Had any evaluations of the end product, the student teachers, been done? Very little, said Mr Clarke. He believed in any case that it depended what sort of product you were looking for.

Students trained at Dundee might not be so well prepared for the formal classroom, but they were equipped for schools where the emphasis was on problem solving and groups where children learned on their own. It was curious, as several ideas in educational technology, is a vision of the future of which few librarians now dare to dream—"a living unicorn" as one conference member described it.

For more conventional libraries there may be other ways forward.

Mr Tom Wilson, lecturer in information studies at Sheffield University, said that a country with such a formal teaching system as Scotland should have given birth to such a radical experiment.

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Cooperation was not a way to economize in hard times, as some people had suggested, Dr Wilson said. "To save money you need to spend money," he said. Delivering such as those now working in Yorkshire were needed for the exchange of books, for instance.

Cooperation had the advantage that it gave librarians a more powerful voice in the community and guides to local resources were useful to the student, but their absence on the consumer was probably marginal.

Dr Wilson said the way forward was through a bigger national inter-library lending system organized by the British Library Lending Division, though there would always be a need for local co-operatives offering a specialized service in local resources.

The solution to the libraries' present problems over money was difficult to find. More inter-library lending was a possibility but this would require more staff to handle the books and to might not happen.

It was Dr Eileen Byre, education officer of the Equal Opportunities Commission who dealt most directly and ruthlessly with the conference's recurrent economic theme as she outlined her crusade against the assumptions which govern our thinking about education spending.

She asked why it was not possible to spend £10,000 on better facilities for the whole of the country, rather than the whole of the country spending £10,000 on better facilities for the whole of the country.

Money was not spent in education according to need. Nobody had proved that it cost more to educate a university student than one at a technical college but more was paid out to the former in staffing, books and accommodation. All students in university had to go to technical schools had to fight for discretionary awards.

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Decisions at science researchers' forum

If the scientific community were to make an annual award for international diplomacy, this year's should surely go to Sir Brian Flowers, Rector of Imperial College, London. Introducing the second annual report of the European Science Foundation, of which he is the first president, to its general assembly in Strasbourg last week, Sir Brian managed in a short speech to include quotations in four different languages.

Epithets from Bismarck, Francis Bacon and Don Quixote were rounded off by the Marquis de Duffaud's remark, on hearing the legend of Sir Brian's slides. Had any evaluations of the end product, the student teachers, been done? Very little, said Mr Clarke. He believed in any case that it depended what sort of product you were looking for.

The foundation was established exactly two years ago as a forum in which the academic research organizations of Europe, not necessarily confined to the definition of "scientific" in the English sense, could meet to discuss possible actions on topics of common interest or concern.

Last year its executive council was able to report that a number of potential fields were being examined. This year its general assembly was able to discuss and agree upon recommendations put forward on three specific issues: the genetic manipulation of micro-organisms, the training of mathematicians and research facilities in astronomy.

The most tangible achievement was the acceptance of recommendations from the working party set up to look at the potential dangers of research involving the manipulation of genetic material and at safety precautions were taken.

In particular, the assembly endorsed the working party's proposal that all European countries should adopt the code of conduct and the advisory mechanism recently laid down by the British Government. It also agreed that the foundation should set up an international committee of representatives from the four European countries involved in such research with a view to harmonizing safety procedures.

Mathematics was the second area where a definite decision was reached. Here a committee set up earlier this year, under the chairmanship of Professor M. Atiyah of Oxford University tackled two specific issues.

The first concerned training and research in advanced mathematics, in particular the work of the *Etudes Scientifiques de France*, which plays the leading role in Europe as a focus for mathematicians. At the committee's recommendation, the ESF Assembly agreed that in future the international work of the institute be considered as an "additional activity" of the foundation, through which non-French funds will be channelled.

The mathematics committee was also asked to consider the need for training facilities were required for advanced mathematicians in Europe, and that a special effort should be made to support it.

Dr F. Schneider, the foundation's general secretary, said the committee's result of the committee's discussions, it was felt that the institute's international activities should be financed by the foundation, as it already serves the foundation, as by providing training courses for mathematicians from a number of countries.

The second issue was the possible setting up of a European Federation of Mathematical Societies. No firm proposal has yet been made, but the committee felt that such a union would strengthen the community sense of European mathematicians by providing a forum for exchange of information, for the coordination of conferences and possibly for dealing with policy questions transcending national frontiers.

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Sir Brian Flowers

A further activity for which the foundation has agreed to take responsibility is the European Programme in Brain and Behaviour Research. This was an initiative of the European Commission for the Co-operation and Development to develop a coordinated European programme for both training and research in the biological and behavioural sciences. It was launched in 1969 following an initiative of the European Commission for the Co-operation and Development to develop a coordinated European programme for both training and research in the biological and behavioural sciences.

The research for which he is best known has been concerned with investigating the way that the brain interprets the visual images received on the retina of the eye. He was one of the first scientists to demonstrate that the brain does not develop automatically from birth in a pre-determined way, but is modified by the form of the visual stimuli that the eye receives.

In particular, kittens who spend the first weeks of life in an environment made up of vertical black stripes later have difficulty in making sense of horizontal shapes due to a selective deprivation in the development of nerve cells in the brain.

The work of Dr Blakemore and others already has important implications for medicine, providing clues, for example, to the possible treatment of those born with sight defects. More significantly, however, it provides a possible model for the development of other sensory systems, and a way of describing how the development of the brain and its functions may be the result of a complex interaction between an organism and its environment.

For what the model suggests is not as many behavioural psychologists have suggested—that an organism merely inherits certain behaviour patterns or "learning" in a relatively straightforward way, but that the very physical organization of the brain can itself depend on an organism's experience of its interaction with its environment.

He remained at Berkeley for three years, conducting experiments both with cats and humans, and completing a PhD in neurophysiology. Dr Blakemore is now a senior research fellow at the University of Cambridge, where he is working on the development of the visual system in kittens and on the development of the visual system in humans.

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At 32, Colin Blakemore gives his first Reith Lecture next week. David Dickson reports Pussy cat, pussy cat, what have you seen?

When Dr Colin Blakemore, fellow of Downing College and Royal Society Locke research fellow at Cambridge University, delivers the first of this year's Reith Lectures next Wednesday evening he will, at 32, be the youngest person ever invited by the BBC to commemorate its powerful founder.

At an age when many research scientists are still struggling for the minimum scientific recognition, Dr Blakemore's work on the physiology of vision has already earned him an international reputation as one of Britain's brightest young scientists.

The research for which he is best known has been concerned with investigating the way that the brain interprets the visual images received on the retina of the eye. He was one of the first scientists to demonstrate that the brain does not develop automatically from birth in a pre-determined way, but is modified by the form of the visual stimuli that the eye receives.

In particular, kittens who spend the first weeks of life in an environment made up of vertical black stripes later have difficulty in making sense of horizontal shapes due to a selective deprivation in the development of nerve cells in the brain.

The work of Dr Blakemore and others already has important implications for medicine, providing clues, for example, to the possible treatment of those born with sight defects. More significantly, however, it provides a possible model for the development of other sensory systems, and a way of describing how the development of the brain and its functions may be the result of a complex interaction between an organism and its environment.

For what the model suggests is not as many behavioural psychologists have suggested—that an organism merely inherits certain behaviour patterns or "learning" in a relatively straightforward way, but that the very physical organization of the brain can itself depend on an organism's experience of its interaction with its environment.

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With their wide implications for social policy, theories of social behaviour present a minefield for any scientist.

It is this minefield that Dr Blakemore has been invited to cross by the BBC, who have asked him to take as a theme for the Reith Lectures brain research and its relation to human behaviour and consciousness. Dr Blakemore came to neurophysiology from psychology, although he had initially intended to study medicine, for which he won a major scholarship from King's College, London, and a fellowship at Cambridge University.

Having studied medicine for part one of the tripos and experimental psychology in his final year, during which time he carried out a research project on the visual system of monkeys, he went on to a Harmsworth Fellowship to the University of California at Berkeley, an internationally known centre for research in neurophysiology.

"Initially I went to do one year's research, almost for fun, before doing the clinical part of the medical degree. But I became so engrossed in the work that I never turned back, and decided there was little point in finishing medicine."

His interest in science had been influenced by the powerful personalities of scientists such as Richard Gregory and J. Z. Young as by the science that they had carried out. "I was impressed very early on by the character and intellect of such scientists, their skill in communication, and the general way that they thought," Dr Blakemore says.

"The whole field of research into vision was moving very fast, and it was forming my own ideas about science, and it seemed to be an area embodying everything which I felt good about science. It was making obvious contributions to clinical problems on the one hand, and useful comments about human behaviour at the level of visual perception on the other."

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Dr Colin Blakemore: "I became engrossed in research."

mechanisms underlying the way that the brain correlates and interprets data received independently by the two eyes.

Dr Blakemore returned to Cambridge as a university demonstrator—and subsequently lecturer—in physiology, where since 1968 he has been involved in a wide variety of experiments largely financed by the Medical Research Council, into the neural basis and development of pattern vision in man and cats.

In particular, he has been conducting an important set of experiments on the "plasticity" of the developing visual system in kittens, involving an analysis of physiological, anatomical and behavioural consequences of manipulating the early visual environment.

"It is now clear that there are significant changes in the brain that alter behaviour both in the young animal and the adult. It just so happens that such changes are exaggerated in young animals. The work of scientists such as Steven Rose at the Open University on young chicks, and my own on the development of the visual system in kittens, each provides a model for describing

how changes in behaviour are determined by experience. "Changing the connections of nerve cells in a meaningful and useful way is a big enough problem to make it likely that if evolution had worked out one way of doing it—for example for the visual system—then the model would be generally applicable to other processes," Dr Blakemore says.

Vision has been taken by the fashionable area of neurophysiology as the primary model of how sensory systems work, partly because it is easier to conceptualize than some of the other systems, he says. "And why this popularity of neurophysiology? I think there are three reasons. The first is that the techniques involved in the research are relatively simple. Equipment is quite inexpensive compared with that used in areas of research such as astrophysics or particle physics: even developing countries can afford research teams," Dr Blakemore says.

"Secondly, after tackling the problems of molecular biology and pattern recognition, many scientists from other fields are turning to the brain as the next 'problem area'—although quite a few of those who have entered brain research from other disciplines have soon realized that it is not an easy nut to crack, and as yet it is difficult to tell how much help they have been.

"The third reason for neurophysiology being fashionable is that the public and hence government departments—seem aware of the importance of the discipline for both social and medical problems, and the MRC, for example, has been prepared to acknowledge it as a priority area for research."

Dr Blakemore admits that, in a broad context, the direction of his work is very much influenced by debates such as the relative genetic and environmental contribution to mental disease, the concept of IQ applied to learning ability, and current theories about child development.

"At a day-to-day level such issues obviously have little bearing on the immediate factors shaping research mechanisms underlying the way that the brain correlates and interprets data received independently by the two eyes."

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me much more mundane—but I think that there does exist what one might call a deep structure of influence."

Past influence in the opposite direction—of the results of psychology on social policy—have been considerable. And the implications of Dr Blakemore's work directly challenge some of the fundamental assumptions on which theories of behaviour have been based.

"The ramifications of classical concepts of 'conditioning', for example, which behavioural psychology has tended to take as paradigm for all systems, has been relatively fruitless, and has, I feel, misdirected our whole approach to behaviour and learning."

He is equally critical of scientists such as the late Jacques Monod who argue that all human behaviour is ultimately based on chance.

"Once you realize that an organism has the opportunity to change its behaviour patterns—something which appears to be a radical and very early step in the evolution of minds—and particularly to change behaviour by social interaction, then evolution transcends the element of chance," Dr Blakemore says.

In this case, something which one might call the inheritance of socially-acquired characteristics becomes very important."

It is this issue that seems likely to lead Dr Blakemore's Reith lectures in the deeper areas of controversy, where the publication earlier this year of Edmund Wilson's *Sociobiology* has already created considerable debate.

Critics of Wilson claim that by ignoring the full extent to which both consciousness and behaviour are moulded by experience, and by arguing that these are largely predetermined by genetic origins, he is providing a spurious legitimacy for existing social practices, and hence the institutions on which they are based.

Dr Blakemore is understandably cautious about advancing along those lines of argument. But he still feels that insight into the control and regulation of human behaviour is the biggest challenge faced by society—and by science,

● Publishing and diffusing new ideas.
● Advising on admission policies, student workloads and pass rates.
● Keeping staff interested in particular teaching methods, and by arguing that these are largely predetermined by genetic origins, he is providing a spurious legitimacy for existing social practices, and hence the institutions on which they are based.

This general picture of the unit's aims emerges from a survey conducted by Terry Hore, of Monash University's Higher Education Research Unit, on behalf of the Commonwealth Secretariat, which is compiling information on teaching research units throughout the Commonwealth. In reply to Mr Hore's survey questionnaire, Dr J. P. Powell (University of New South Wales) summed up an attitude that is shared by many of his colleagues: "We have never adopted a policy of attempting to intervene directly in policy-making or teaching in order to bring about change."

"The policy has been that of making use of whatever opportunities of values and practices and to support those willing to experiment." Or, as Professor Rose put it in his inaugural lecture: "As far as the improvement of an individual's teaching performance is concerned, there is greater potential value in his ideas, attitudes and in the teaching methods than in the specific teaching situations that he is playing him, with respect universal truths about teaching."

Some institutions arm their units with a few powers and incentives to encourage academics to take an interest in them. At the new Griffith University, schools of studies are enjoined by the statutes to seek the unit's advice on course development.

The Western Australia Institute of Technology offers a mini-fellowship scheme which allows lecturers time off to research and develop new teaching methods, by providing departments with funds for temporary replacements. The units at Queensland and Monash have established staff positions reserved for lecturers seconded from other departments.

The normal responsibilities of the units include:
● A consultancy role—advising lecturers on specific problems.
● Helping departments to implement and test new ideas.
● Holding short courses on teaching and assessment techniques, and particularly on the use of audio-visual aids.
● Researching the effectiveness of teaching and learning.

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Where 'Tedi' and 'Terc' hide progress towards better teaching

Fourteen of Australia's 19 universities have established units to improve the quality of higher education teaching. Two others were planning to set up similar units over the next three years, until economic cutbacks made the prospects more doubtful, and

NORTH AMERICAN NEWS

MICHAEL BINYON reports
from WashingtonThe Times Higher Educational Supplement (London) Room 541
Tel. (202) 638 6766 National Press Building Washington D.C.American college intake
may be on decline

For the first time in many years the number of students in American colleges and universities may have declined. Preliminary results from an enrolment survey this autumn suggest that the total may be 1 per cent down on last year—although the National Centre for Educational Statistics was predicting a rise of 4.5 per cent until recently.

The decline has been reported by Mr Garland Parker, director of educational research at the University of Cincinnati, who has been compiling enrolment reports for the past 17 years. He estimated the drop from returns by 688 colleges and universities, but admitted last week that when the final figures are published in the spring they may show a slight increase of about 2 per cent or 3 per cent.

His preliminary findings indicate a total of 11,726,000 students for 1976 compared with about 11,200,000 last year. He describes this fall as a surprise, especially after the large and unexpected rise in enrolments last autumn.

Mr Parker gave three main reasons for the decrease. First, the American economy is picking up in the summer of 1975 there were few jobs available so many young people decided to go to college.

This year the economy improved, and many who enrolled in 1975 have dropped out—especially women and part-time students. Also, the job market is now more attractive to school leavers.

Second, colleges and universities have increased their tuition rates by unprecedented amounts this past year. This has had a depressing effect on enrolment, especially among lower-income families.

Third, several states have placed ceilings on the growth of

public institutions, either to hold down costs or to avoid overcrowding in classes and halls of residence.

One of the sharpest declines has been in the number of veterans deciding to go to college. Statistics show that some 34 per cent fewer veterans enrolled this autumn than the record total of 1.1 million last year. The fall has been particularly noticeable in two-year community colleges, and is partly explained by the tightening of regulations to stop overpayment of educational benefits.

Among the trends in the 688 colleges reported by Mr Parker were:

- The number of part-time students in four-year colleges declined by 13.6 per cent after years of significant gains.
- The number of full-time students increased only 1.5 per cent in four-year colleges. Areas reporting increases were law and medicine, up 17.8 per cent; theology, up 4.7 per cent; and private institutions, up 7 per cent. There was a loss of 2.2 per cent in public institutions.

- Overall, four-year colleges and universities showed a 2.2 per cent decline.
- The boom in enrolment at two-year colleges has slowed to a crawl. The number of full-time students declined by 1.2 per cent, while the number of part-timers increased by 3.8 per cent. The overall gain was the lowest for years.

Several bodies have already commented on these preliminary figures. The American Association of State Colleges and Universities expressed "great concern" at the reported decline, pointing out that, if substantiated, this would be the first decline in enrolment since 1951. It blames high tuition fees.

Record-breaking Laval strike
is still deadlocked

The strike at Laval University, in Quebec City, has now entered its tenth week, and there seems little likelihood of a resolution. It has already become the longest academic strike in Canadian history, and there is now no possibility of saving the current academic term.

The effect on the 23,000 students will be grave. Those hoping to graduate this year will not be able to do so; those intending to take professional examinations will not be able to sit them and will waste the best part of a

year. The university's financial position is also precarious. It has lost millions of dollars by the strike, and the strike itself has not expected their lost salaries to be made up when a settlement is reached. It would now be more convenient to the administration if the strike were to continue until Christmas.

The 900 striking teachers are now drawing money from their strike fund. This has been raised to over \$100,000 from other universities in the province, and last week the teachers asked the Canadian Association of University Teachers—which is supporting the strike—for a direct contribution to the fund. This poses a delicate question for CAUT, which is still debating whether it should have a strike fund itself.

The mood among the Laval teachers is depressed, but they are

still militant. They believe the issue at stake is not just their own salaries but the future of the university. But the university's administration is determined to resume negotiations "in light of an earlier statement by Dr Larkin, the rector, that the administration had made its final offer."

It is hard to predict the long-term effect on Laval. The university is the oldest French-speaking institution in Canada, and has been vigorously expanded in the past 10 years. It has evolved from a Catholic school to a secular university.

The Quebec government has so far made no move to intervene. With elections coming up at a time of general worry over inflation and unemployment, it is not likely to take the longer the strike continues the more money the government saves.

Scientists can
alter genetics
of living cells

At a time when there is considerable controversy over genetic engineering and recombinant DNA research, the University of California at San Francisco has developed a technique to alter the genetic constitution of living cells by introducing synthetic DNA.

The technique is similar to the artificial synthesis of a functional gene recently announced at the Massachusetts Institute of Technology. But there are important differences. At MIT the group synthesized the tyrosine transfer RNA gene, while the research at San Francisco involves the genetic segment, LAC operator. In this technique used to synthesize the genetic material into the living cells, the MIT group used viral DNA, while the four San Francisco researchers used plasmid DNA native to the bacteria culture being used.

The experiments were completed in March. A synthetic gene element which was an artificially created copy of LAC operator DNA was inserted into the live cells of a common laboratory bacterium (*Escherichia coli* K-12).

Using a new technique for the formation of recombinant DNA, they successfully inserted the synthetic material into the cells by attaching it to natural bacterial DNA. This involved a number of ingenious procedures by which the natural DNA and synthetic DNA were selected and prepared for their union. The natural DNA, which came from bacteria, consisted not of the long chromosome chains but of another form of circular DNA called "plasmid" DNA. These plasmid DNA rings were broken open, or "snipped" by a special enzyme, so that the synthetic material could be attached to their ends.

In synthesizing the new DNA segment which was to be attached to the plasmid DNA, the researchers created not only strips of the LAC operator DNA, but also attached complementary DNA to both ends of the strips. The synthetic material was complementary to the broken ends of the plasmid DNA. The resulting "sticky ends" enabled the natural and synthetic DNA to adhere to each other, becoming "recombinant" DNA.

The recombinant DNA was then introduced into live bacterial cells through a special process which reduced the resistance of the cell membranes to the entrance of outside material. Once inside the cells, the recombinant DNA proceeded to duplicate and function, thus altering the genetic constitution of the cells. This change resulted from the operation of the synthetic DNA, which helps the production of an enzyme called beta-galactosidase. The level of the enzyme increased 40-fold over that in cells without the recombinant DNA.

The researchers at San Francisco say their technique will enable the mass production of substances such as human insulin and pituitary hormones. Dr Herbert Boyer, who heads the group in the Department of Biochemistry and Biophysics, was the first person to combine DNA from two different species two years ago at Stanford University. His work is supported by grants from the National Science Foundation and the National Institutes of Health.

The principal difference between his work and that proposed by Harvard University was that he was introducing a synthetic novel into

'Cheating' case
captain quits

The military lawyer who played a prominent part in defending West Point cadet in this summer's cheating scandal has resigned from the US Army under pressure.

Captain Arthur Lincoln was passed over for promotion this summer, and was recommended for a court-martial for his part in the scandal.

An "outspoken critic" of the military establishment, Captain Lincoln was left by a general down for promotion because his comments on the cheating scandal



Where there's oil... there's money for education

Oil boom Alaska tops charts
in education spending

State funds for higher education are still going up faster than the rate of inflation, and well ahead of the inflation rate, according to annual statistics gathered by Dr M. M. Channarayana, professor of educational administration at Illinois State University. In the last two years state appropriations have risen by 24 per cent.

The rise is slowing down, however. In the two-year period ended last autumn the increase was 28 per cent, and in the two years up to 1974 it was 29 per cent. And since the latest rise is above the inflation rate of 16 per cent, the increase in the last two years is well above the combined effect of inflation and the growth in student numbers. To keep up with the 13 per cent jump in enrolment, states would have had to appropriate 30 per cent more this year than in 1974.

Alaska again topped all the charts in educational spending this year—in percentage increase (up 80 per cent in two years), in appropriations per capita (\$184), and in appropriations per \$1,000 of personal income (\$19.50).

But these large increases are partly offset by Alaska's particularly high rate of inflation due to the pipeline and oil boom. States in which the purchasing power of higher education appropriations increased by 20 per cent or more were: Texas (up 43 per cent), North Dakota (33 per cent), Oklahoma (24 per cent), Nebraska and Nevada (23 per cent), Idaho (21 per cent), Arkansas, Alabama and Hawaii (20 per cent).

States that have shown an actual decline in the purchasing power of state funds over the past two years, according to the higher education price index, were: Maine (down 17 per cent), Vermont (14 per cent), New York (7 per cent), Illinois and New Jersey (6 per cent), Wisconsin and Georgia (3 per cent), South Carolina and Michigan (2 per cent), and Pennsylvania (1 per cent).

New England is still doing very poorly in higher education, Maine,

Massachusetts and Rhode Island.

Professor Channarayana says that the figures are based on the *Chronicle of Higher Education*, which also shows the relative position of the 50 states in educational spending.

Alaska comes out as the top state in the past 10 years, having increased its appropriations by 78 per cent. But because of its high inflation, its purchasing power has declined by 147 per cent. Texas, South Carolina, Nebraska and Massachusetts have made great advances in this decade.

Overall, the states spending the most on higher education are California and New York, followed by Illinois, Texas, Michigan, Ohio, Pennsylvania, Florida, North Carolina, and Wisconsin.

Professor Channarayana is compiling these figures for the *Chronicle of Higher Education*. His charts, published by the *Chronicle of Higher Education*, also show the relative position of the 50 states in educational spending.

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European scientists back
UK gene guidelines

from David Dickson

BRISBANE—British government guidelines for the conduct of potentially dangerous research in the genetic manipulation of microorganisms should be adopted by researchers throughout Europe, according to the European Science Foundation.

The foundation, which is made up of 45 scientific research organizations in 16 European countries, is planning to set up an international committee to keep such guidelines under review, and to correlate safety procedures between different countries.

The research involves manipulating the genetic structure of microorganisms, such as bacteria. Although the technique offers many advantages in medicine and agriculture, for example, in increasing the ability of plants to absorb nitrogen from the soil, scientists have become concerned that they could lead to the accidental creation of major health hazards, such as new strains of antibiotic-resistant bacteria.

In Britain all such research is now subject to a voluntary code of conduct drawn up by a working party under the chairmanship of Professor Sir Robert Williams, director of the Public Health Laboratory Service.

The government is also, at the working party's suggestion, setting up an advisory committee which will discuss the potential hazards of proposed experiments and the necessary safety precautions.

At its general assembly here last week, the foundation agreed that the British approach to the control of experiments involving recombinant DNA molecules was preferable to that which has been suggested in the United States by the National Institute of Health.

The NIH proposals rely largely on

the use of experimental organisms which have been biologically neutralized by means of alterations which decrease their ability to survive outside a laboratory environment.

In contrast, the British procedures emphasize the physical containment of potentially dangerous organisms.

"The potential health hazards that could arise accidentally from research in this field are very great, and it would be an act of irresponsibility for any scientist to ignore the necessary safety precautions," Sir William Williams said at the foundation's assembly.

"In suggesting that other European countries adopt the British procedures, the ESF hopes to establish a common set of standards throughout Europe for measuring the degree of hazard and the necessary containment involved in experiments in this field."

The assembly also agreed that the foundation should support the international work of the *Institut des Hautes Etudes Scientifiques* at Bures-sur-Yvette near Paris.

The institute, founded privately in 1958, is now substantially supported by the French government, with additional support from research organizations in various other European countries.

The foundation accepted, too, a recommendation from a working group on astronomy that La Palma in the Canary Islands should be developed as a centre of European astronomy. It endorsed the working party's support for the decision by the British Science Research Council to move the £2.5m Isaac Newton optical telescope from Britain to La Palma.

Background, page 8

Sweden
Curbs urged
on overseas
admissions

from Mike Duckenfield

STOCKHOLM—Rules for foreign students seeking places in Swedish universities and colleges may be tightened up following Immigration Board proposals currently being examined by the government.

The board wants to make it compulsory for foreign students to obtain residence permits before entering Sweden and to promise that they will leave the country on completion of their studies.

It is hoped that this will prevent the present evasion of immigration controls by those entering without permits and attempting to stay as visiting students.

The new rules, which the board want introduced next year, would coincide with the implementation of the 1975 Higher Education Act next July. Admission rules, drafted in the wake of the legislation, lay down a maximum 10 per cent of future first-year places to be made available to foreign students (THES, May 28).

The number of foreign students has increased fivefold in the last decade to just short of 3,000. As a proportion of all first-year students they have doubled to about 10 per cent.

Finnish students, accounting for about a quarter of all foreign students, form the largest group with Americans (13 per cent) in second place. The other three largest groups are Norwegians (7 per cent), Greeks (6 per cent) and Poles (5 per cent).

Internationalization of higher education is one of the aims of the 1975 Act reforms and a Swedish National Equivalence Information Centre dealing with the status of domestic and foreign qualifications is to be set up as part of the new Office of the Universities and Higher Education which started work last month.

Republic of Ireland

Technology
plan comes
under fire

from John Horgan

DUBLIN—A large question mark was placed against the government's higher education policy last weekend by Mr Sean O'Connor, chairman of the Higher Education Authority, when he told a symposium in Dublin that there seemed to him to be no need for a third-level technological institution in Ireland.

Mr O'Connor, a former secretary of the Department of Education, was referring to the government's decision to establish a National Institute for Higher Education in the capital, which would bring together a number of institutions currently under the control of the state's vocational education committee.

The government envisaged that the institute would become a recognized college of one or other of the city's two independent universities, which would then validate its awards at degree and other levels.

Mr O'Connor said that his objection to the plan was founded on the fact that the essential government decision had been in favour of two independent universities in Dublin, and that these would control the awarding of degrees to all students at third level.

What was much more urgently needed by the city were additional colleges providing technicians and other education courses.

Mr O'Connor also argued that if the government were serious in its belief in an integrated system of higher education, it should be giving the universities valid being done in technological institutions. By the National Council for Academic Awards validating power over the non-degree work in the universities.

Meanwhile, work on the proposed new universities is going ahead at a frantic pace. It is still hoped to have the first university, when Mr Richard Butler, Minister of Education, now seems certain to go to Brussels as an EEC Commissioner.

West Germany

Unemployed graduate numbers
continue to rise

by Günther Kloss

About one in three of recent graduates of West Germany's universities and colleges are initially without jobs, the local Nuremberg Employment Office announced recently. A more thorough analysis by the research institute of the Central Federal Employment Office (also in Nuremberg) found that at the end of May 18,404 graduates, or 1.9 per cent, were unemployed. This is an increase of 0.9 per cent over last year.

The number of men and women leaving the institutions of higher education with first degrees has, of course, also risen year by year. In 1960 there were 47,800 and in 1970 92,000. The forecast for 1980 is 120,000, and for 1985 between 148,000 and 219,000.

It now seems likely—in view of the special efforts being made everywhere—that virtually all applicants for a university or college place will be admitted over the critical period of the next eight to 10 years, despite the steep increase in the number of qualified grammar school leavers. This almost inevitably means that not all teachers will find teaching posts nor every law graduate a legal appointment.

In fact, in its study the institute is advising undergraduates to arrange their studies on a less rigidly career-oriented basis. This is revolutionary thinking as far as subjects like medicine, engineering or most arts subjects are concerned (in the latter disciplines in Germany traditionally some 70-80 per cent of graduates go into teaching). The study suggests, for example, that a nurse with a full medical degree, or a master craftsman holding an engineering degree should in future not be considered exceptional.

On the other hand, the institute predicts that a relatively high "replacement rate" will obtain for a

variety of careers, ranging from farmers, management consultants, master craftsmen in industry and accountants to practising lawyers, librarians, hotel-managers and interpreters.

In general, the number of actively employed persons with a degree is likely to rise from the present 4 per cent to 6 per cent by 1980, which will still be below that of most other highly industrialized countries.

Inevitably, graduates will occupy jobs that hitherto had been filled by non-graduates (incidentally by very little difference in pay, on present evidence). However, this will not necessarily mean fewer opportunities for non-graduates. In the long run there will be fewer of these in any case and there is a genuine trend to create additional posts.

The teaching profession is the graduate career where employment difficulties have reached greatest prominence during 1975 and 1976. Here a genuine shortage of staff—in some schools, the teachers' union points out, up to 25 per cent of teaching times is lost—conflicts with the cuts in the education budgets of the *Länder*. In the autumn of 1975 some 2,100 teachers were without jobs; this year it might be as many as 4,300.

The Education Ministers' Conference disclaims any responsibility for the present state of affairs and reaffirms the need for more teachers; it blames the economic situation and the shortage of funds. The ministers have begun implementing a series of remedial measures which include cutting the starting salary of young teachers or the splitting of one established full-time teaching post into two part-time posts. It remains to be seen whether these and other measures will ease the situation.

Patrick Knight reports from Buenos Aires on the continuing struggle for reforms on Argentina's politically-run campuses

Entry cuts aim to
raise standards

The universities continue to play a key role in Argentina, as they have for at least the past 10 years, and although the atmosphere within them is not now quite so tense as the general political situation, the battle for control by the right and by liberal elements goes on.

When they assumed power in March the military authorities took control of all of Argentina's 26 state universities, and temporary rectors from the armed forces were installed as chief administrators. It was thought that the universities were still a redoubt of the guerrillas, but during the last phase of Isabel Perón's government, the universities had been completely purged of left-wing sympathizers and their administrations had become a major power base of the far right of the Peronist party.

Since March, a process of replacing military authorities with locally nominated civilians has now been virtually completed. One of the first to be appointed was a liberal rector of the massive and powerful University of Buenos Aires, Dr Enrique Costantini. A quarter of a million students, half of Argentina's total student population, are enrolled at Buenos Aires, and it plays a key, and frequently exemplary, role for the rest.

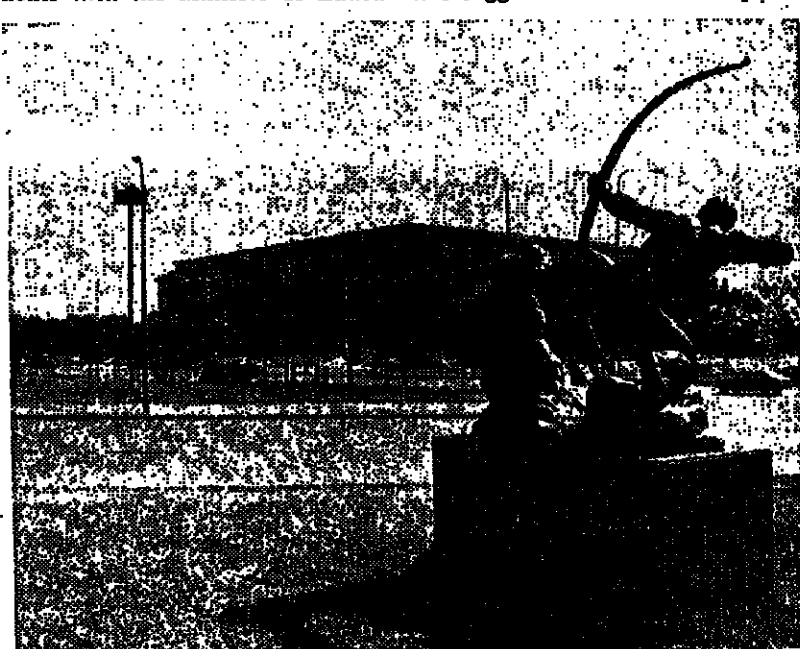
However, Dr Costantini, a direct nominee and friend of President Videla, who was in favour of academic autonomy and democracy within the universities, resigned last month after a series of disagreements with the Minister of Educa-

tion and course of his choice by every school leaver who passes his *bachillerato*. This was one of the factors which led to the rapid growth of the University of Buenos Aires at the expense of the rest. The Buenos Aires economics faculty, for example, now has 70,000 students.

Last year, the first step was taken towards limiting intake, though it was generally confined to the various faculties of medicine. This year a limit of 10,000 new entrants will be imposed at Buenos Aires, compared with 30,000 last year.

The rest of the universities will also set quotas, although debate continues as to whether this should be decided locally, or by the Ministry. Without some alternative institution for students to go to, an explosive situation is likely to be created. It is therefore planned that a network of polytechnics should be set up. The universities of Argentina would hardly be considered such in many parts of the world. Quality of entrants is now very low, with only 10 per cent of the massive intake eventually graduating. Over the country as a whole the student/staff ratio is of 45 to one, far higher in Buenos Aires while library facilities are totally inadequate.

The anticipated reforms are likely to create considerable controversy before they are agreed. One study by the Ministry proposed the abolition of the teaching of sociology, psychology and anthropology, was suggested that these disciplines



Faculty of Law, Buenos Aires.

tion, Ricardo Bruera, who wants higher education decisions to be more centralized than hitherto. Costantini had the support of the group of liberal officers advising the president, but his position attracted the hostility of the hard-line military, who have been given extra ammunition by the labour disaffection of the past few weeks, and the continuing economic crisis.

He was also opposed by those within the universities who argued that they had fought hard over the years for the removal and exclusion of far-left-wing elements who, they said, line military, who have been given extra ammunition by the labour disaffection of the past few weeks, and the continuing economic crisis.

Meanwhile, the government's plan to achieve what no recent administration has been able to do in Argentina—undertake a profound university reform. University structure is still largely what it was at the turn of the century. It is for political reasons, the rigid pattern of huge and powerful faculties persists, churning out thousands of lawyers, architects, doctors and economists for whom there are no jobs, while courses orientated towards technology, agronomy and administration are still looked down upon and are generally lacking.

One of the first taboos has already suffered its first reverse.

That is the free entrance to the higher education decisions to be more centralized than hitherto. Conditions of employment in the universities have continued to deteriorate over recent years, one result being that little research is now being done. A full-time lecturer, long permitted to have other employment, earns only half what he would in industry, and this has contributed to the brain drain. An average full-time lecturer receives the equivalent of £100 a month, and although food and accommodation is cheaper in Argentina than in Europe, consumer durables and other items are taught the same. With 15-20 years' service, a senior lecturer may earn double this amount, but a younger junior lecturer, in the 25-30 age-group, with little seniority will receive far less.

The amount allocated to education will decline from 13.1 per cent of the total budget in the previous 12 months, to 9.2 per cent in the current period, so there is no scope for improvement in the near future. If the government remains in power for any length of time, and on its present course without being deflected too far to the right, a real possibility of the much-needed reforms is likely that the long-overdue reforms will be carried out without much resistance. Virtually everybody accepts the need for change. The fact that so little has been done in the past 75 years, however, illustrates the complexity of the task.

مكتبة الأصل

Unfinished business

It may be coincidence but it probably is not. The involuntary departure of Mr Gerry Fowler from the Department of Education and Science has been followed by an apparent vacuum in official policy on two important areas: reform of the structure of higher education outside the universities and recurrent, or adult, education. Added to Mr Callaghan's new and harsher line on education's obligations to industry and the DES's naive (but convenient) belief that student numbers in universities and colleges could actually fall next year for the first time since the war, it may represent a significant reaction from former policies—with which, of course, Mr Fowler was very much associated.

The first area is the more significant in the short term. In the summer Mr Mulley, when he was still Secretary of State, announced that a working party under Mr Fowler would be formed to look at the organization of the public sector of higher education—a long overdue task considering the "disorganization" of the colleges of education over the past three years and the unplanned growth of new colleges and institutes. The intention seemed to be to form a comparatively small and cohesive body which would report in a matter of months. But now November is upon us and the membership of the working party has not even been settled.

Of course, the DES was bound to encounter difficulty in its formation. In particular the local authority associations have found it hard to agree on their representation. Also the major teachers' organizations involved, the National Association of Teachers in Further and Higher Education, was uneasy about a working party which appeared to be rigged to favour Mr Fowler's own view of how the polytechnic

Training young workers

Popular prejudice about the Manpower Services Commission in further education goes something like this. On one side the new levianth MSC bloated with public money, and the Training Services Agency which it has spawned. In this over-elaborate (and over-expensive?) bureaucracy vacuous altruism about jobs and training is in more abundant supply than concrete and detailed initiatives in these areas.

On the other side further education, which in collaboration with the industrial training boards and the more progressive parts of industry provides much of the training for young workers, is often seen as a "dead end" because in a state of stagnation. Further education is likely to suffer the more than any other sector of the economy.

Of course, this is only prejudice. The MSC and TSA are neither so vacillating nor so parasitic, nor further education is so impoverished or so entirely beyond criticism. The staple diet of the TSA, TIPS (Training Opportunities Scheme) courses, is offered not only in the agency's own Skillcentres but also in further education colleges. Similarly the links between the TSA and industrial training boards mean that it is entirely unrealistic to think in terms of too sharp a contrast between the MSC-TSA empire and further education.

On the other hand, there is enough truth hidden beneath the

prejudice to raise serious doubts about whether the present structure of training, created following the 1973 Employment and Training Act, was a step forward. In the past three years the training package has been much improved—the new MSC document *Improvements in Manpower Policy* published on Monday is the most recent example—but its contents have changed much less. This is not to say that the improvements have been only cosmetic but that there have been many more words than actions.

In the present political climate this was inevitable. Training has become a fig leaf behind which the nakedness of unemployment can hide. Faced with the choice of giving money to the "dead end" of further education or to the "dead end" of unemployment, the government has chosen the latter. Sadly the MSC and TSA are responsible to the Department of Employment and so on the right, the other hand, is eventually responsible to the Department of Education and Science and so on the left. Yet the opportunity of political action cannot completely hide the confused state of industrial training. Since the first Industrial Training Act, repeated attempts have been made to create a satisfactory administrative framework for training in which public, private and individual needs could be accommodated. The creation of the MSC and the TSA has certainly not made further attempts redundant. It has perhaps made them more urgent.

LETTERS TO THE EDITOR

Aspects of literary sociology

from Dr Patrick Parrinder
Sir—The charges that David Musselwhite and his colleagues at Essex hurl at me with such fury (THES, October 29) are that I overlooked some aspects of the sociology of literature conference and that I have invented divisions and conflicts where none existed.

My article was a general review of the state of literary sociology and did not pretend to give an exhaustive account of a large three-day conference, at which many of the papers were given simultaneously in retrospect. I feel that my statement about the "absence of any reference to the British Marxist historians" should have been more qualified, but it was true of the informal discussions in which I participated, and this impression has been confirmed by others who were present.

I was well aware of the literary-historical work going on in small working groups (including some that the organizing committee fail to mention) but I was also aware of a yawning gap between these and the plenary sessions which were what set most people talking.

Having stressed the diversity of the programme, within the chronological limits noted in my article, the committee then accuses me of "dividing" divisions of various kinds, and even of "rehabilitating the university-polytechnic division".

Admissions boom
from Mr B. E. Riches
Sir—Perhaps there is another story behind your front page piece on the admissions boom in the polytechnics (THES, October 15).

The two engineering courses with which I am familiar have in fact a larger intake this year than last, but the increase is largely accounted for by an increase in overseas students.

I suspect that this experience is general throughout the polytechnics because increasing numbers of overseas students are studying for GCE A levels in this country during the past two or three years are not finding their way into the higher education system.

As the country wants all the exports it can get at the present time, exporting higher education makes a contribution. But any amount of education of overseas students will not help to regenerate our own economy and it is dangerous if the true picture is masked by overall statistics such as those you published.

Present time, particularly true at the present time, is a long time at the present time. The need to increase the quantity and quality of our practising technologists.

Yours faithfully,
B. E. RICHES
Mellor Road,
Leicester.

Eysenck imprecision

from Mr Rus Gandy
Sir—I was surprised to see a psychologist as eminent, and as concerned for precision, as Professor Eysenck, making the charge that the "positive reinforcement" term, as used by Skinner, is "misleading" (THES, October 22).

He ends his devastating review of Skinner's first volume by saying: "it can only advise readers to avoid this particular volume unless they want to experience at first hand the effects of negative reinforcement." As I understand it, the term "positive reinforcement" refers to something which makes the repetition of a response more probable, in the former case by the cessation of the stimulus, in the latter case by the occurrence of the stimulus. What Professor Eysenck means is that one should avoid reading the book unless one wants to experience the effects of punishment, which can, indeed, reduce the probability of a response.

Yours truly,
RUS GANDY
School of Management Studies,
Polytechnic of Central London.

by failing to mention the "presence of colleagues from Thames Polytechnic". I can only say that there were manifest intellectual differences on show, and I cannot see what is to be gained by disguising them. Whether or not I have succeeded in describing them accurately, they certainly exist.

The committee find some words I used about Machiavelli "insulting", and since I agree that his work is too little known, I should like to clarify these. He is "banal" in his criticism of Balzac and Jules Verne—when this is put beside the claims he makes for his theory—and "canonical" (not, I should have thought, a particularly insulting adjective) when he bases a theory of literary reflection on the philosophy of Lenin.

Finally the committee's fervid attempts to establish my political motivation demand some comment. They say my article ended on a note of warning, "whatever that may mean". Their own letter is full of blistering rhetoric of which Zhdanov would not have been ashamed. The impression is given that they cannot take criticism from any standpoint but their own. I am sorry that the official voice of the Essex conference would sound so sectarian, so self-righteous.

Yours faithfully,
PATRICK PARRINDER
Department of English,
Reading University.

Russian studies

from Mrs J. H. Brown
Sir—In the light of your correspondence on the teaching of minority languages, may I suggest a course of Russian studies to be offered to all 15 to 16-year-old pupils, not just "the linguists"—towards the end of the school curriculum.

At this stage, boredom with the whole idea of school can set in, but it is at this time when something different can catch the imagination, and make a pupil realize that it can be exciting to learn, and especially to make even a nodding acquaintance with something which is so interesting, and relevant to all our lives, as Russia, past and present.

I would suggest one afternoon a week (or a good part of a morning) and at least a third of the time should be devoted to language work, mainly oral at first, spelling and grammar being introduced as and when necessary.

We have peripatetic teachers for music—why not for some languages? In this way large numbers of pupils would have their horizons extended, and some would find the language and opportunity to pursue their studies to a higher level.

I think a course of this kind should not come under any normal examination system, but the teacher would, of course, devise his own monitoring "when it is expedient". It would not be as expensive as a language—good graduates in Russian from most of our universities will have the necessary background in history and literature as well as language.

Yours sincerely,
J. H. BROWN,
Moor Drive,
Leicester.

School leaver inquiry

from Mr T. W. Keeble
Sir—The Education, Arts and Home Office Sub-Committee of the House of Commons Expenditure Committee, chairman Miss Janet Fookes, are proposing to undertake a new inquiry: "The Attainment of the School Leaver".

While the sub-committee is, of course, considering specific organizations and individuals with a particular concern in this subject, it feels that many of your readers will have views of interest to it.

It would be most helpful, therefore, if readers could send any submissions, in as brief a form as possible, to the address below, by 15th November.

T. W. KEEBLE
Clerk to the Education, Arts and Home Office Sub-Committee,
Committee Office,
House of Commons,
London SW1A 0AA.

Languages' crisis

from Dr André Linco
Sir—Sheila Newman and the "Tew's" paper (THES, October 29) appearing so soon after Prof. Gibb's informative article on "The crisis in modern languages in secondary and higher education" (THES, October 8) shows that even these students are not free from anxieties.

It is to the credit of Newman and Tew that they should look for a widespread practice of presenting stock of useful phrases, the so-called "linguistic" which limits the forming within such a narrow technical value.

The cognitive emphasis of the contributors' key-note address, being the systemic teaching of new elements, is a welcome contribution to the study of the material over time presents interesting possibilities for the study of stability instead of change, but in Egypt is elsewhere, an impression of uniformity is often the result of slight acquaintance with the topic.

The single crucial feature of Egyptian society that preserves it and sets it apart from many others is its literacy, yet one searches in vain in theoretical work on literacy for discussion relevant to the Egyptian case or for knowledge of it.

Egyptologists honour this primacy of literacy by making the language their approach to the subject. Often they have tended to dwell on grammar, lexicography and paleography at the expense of content, but such an emphasis will continue to be valuable as long as the study of the language remains the most areas of the subject would be very slim. Language comes at the beginning, but any restriction to it would make the subject more a branch of linguistics than a separate discipline.

Discretionary grants

from Margaret Morris
Sir—As Leslie Waggoner (THES, October 29) the effect of cuts in educational grants and increased fees is likely to be disastrous for students who wish to obtain discretionary grants.

Indeed, the situation is so serious and students who are certain to have been awarded a grant a few years ago are now refused one by some local authorities.

Although this problem concerns vocational courses, a considerable number of students on potential students on degree courses are also affected. It is not widely realized that on a degree course serves to disqualify an applicant from a mandatory grant even if the attendance is only a short time only and even if it was paid.

Older students trying to come an earlier start are also dependent on discretionary grants and many of them are being denied help.

I have a student whose total to the taxpayer she was was one year at a teacher training college but who has now, a year later, been refused a grant because her local authority considered she is under-qualified.

On the contrary, it is she who is a very deserving student because the authority to whom she has applied for a grant has refused to award it.

Only in Germany is the subject common enough for its practitioners to be institutionalized, with annual conferences and the rituals of academic life. But in Germany the subject has been characterized by a "scholarship" discipline, a term that could hardly be understood in a variety of ways, few of them complimentary.

Despite the small scale of the subject, there is surprisingly little contact between Egyptologists and their colleagues. The need to learn the language, and the obscurity of the secondary literature, render it difficult for outsiders to enter the field, which is isolation is most undesirable, and of course leads to much fruitless duplication of efforts.

German Egyptologists have a greater self-confidence, and there is more inter-disciplinary exchange in Germany. The comparative is that Egyptologists have seldom made their interpretative assumptions sufficiently explicit, and have tended to sidestep issues of theory, seemingly adhering to the view that any intelligent person should be able to understand the past and that our access to it is directly through its remains.

The access is indirect, and if the route is not examined, there is a danger of becoming lost. Analytic concepts in particular should be evaluated on a wider basis than that of a single culture, and should be distinguished from the inherent categories that are the main object of research; those categories do not simply reveal themselves. And if the work of Egyptologists is to have a general value its synthesizing parts must be formulated in terms usable by outsiders (including many immediate colleagues). Contacts of this sort will never be easy, as all scholarship is shifting ground.

Oxford's professor of egyptology discusses the many tools used in studying his subject

A discipline may be defined either by the theories and methods it uses, by the range of subject matter it studies, or by a mixture of the two criteria. Egyptology is defined by its subject matter, at its broadest the products and activities of man in Egypt and the northern Sudan from prehistory to the Arab conquest.

More narrowly, the conventional focus is on the dynastic and Graeco-Roman periods, about 2900 BC-AD 395, and the work of Egyptologists is more heavily philological, literary and art-historical than archaeological. Prehistory is specialist preserve, and seems to have little bearing on the characteristic features of later periods. Graeco-Roman Egypt is a mixed area, in which classicists, Egyptologists and scholars at home in both fields are at work, and Christian Egypt attracts a still more varied, though sparser, following.

In most cases, the significance of Egyptology is in the exceptional preservation of a wide range of information about a culture that has few close parallels elsewhere in the world. The closest in type are the closed in geography, namely the cultures of ancient Mesopotamia and China.

An interest in Egypt simply because of its age is inappropriate. The long time-span involved is an immense in terms of human evolution. Any attempt to see in the course of dynastic Egyptian history a stage of development of social—or mental—forms, as opposed to a type of such forms, cannot be more than tentative. The spread of the material over time presents interesting possibilities for the study of stability instead of change, but in Egypt is elsewhere, an impression of uniformity is often the result of slight acquaintance with the topic.

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The work of an Egyptologist research can be summarized as archaeological field-work and research; epigraphy, work on cursive texts (termed papyrology only for Greek material), the study of language and lexicography; literary studies; religion; art; history; ancient medicine; economics, law and administration; miscellaneous topics like medicine and administration.

These are presented very approximately in the order of closeness of contact with raw data; together they form a fair proportion of the subjects that are studied separately for the modern world, and the perfect Egyptologist, as well as having a colossal memory, would be a polymath within his limited sphere. In practice, the subject is fragmented, and there are ultimately almost as many types of Egyptologists as areas they specialize in; few would claim to have mastered even two or three.

The 150 years since the decipherment of the script have produced a large body of secondary literature, but there are few areas in which either the archaeological or the literary, or the study of language and lexicography, or the study of religion, or the study of history, or the study of economics, law and administration, or the study of miscellaneous topics like medicine and administration, have reached a high level of sophistication. The two types of production are often inseparable in day-to-day work; but the second is my main concern here, and in particular the links with other disciplines.

The pattern of academic Egyptology cannot be understood in terms of the research activities in a single country. There are probably about 300 professional Egyptologists in the world, about half of them German speaking, and not more than one tenth in Britain.

Only in Germany is the subject common enough for its practitioners to be institutionalized, with annual conferences and the rituals of academic life. But in Germany the subject has been characterized by a "scholarship" discipline, a term that could hardly be understood in a variety of ways, few of them complimentary.

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Relief from the tomb of the general (later King) Haremhab at Saggara, discovered by an Anglo-Dutch expedition in 1975. About 1320 BC. Courtesy Egypt Exploration Society.

Language the key to secrets of Egypt

ever it is. In work on textual material, contacts will take different forms as, for example, between medicine, where much of the outside knowledge the Egyptologist needs is technical (Egypt is also important for the general history of medicine), and fields like art and religion, where analytic methods, theories or particular insights and parallels are more important.

But the search for insight from elsewhere is perilous (as classicists have also found). The obstacle to forming hypotheses in these subjects is partly the remoteness of the culture, but especially the fragmentary record; this applies more strongly to Egypt than, for example, to Mesopotamia.

There have been too many attempts to reconstruct dead civilizations on the basis of badly chosen parallels for one to believe that this will be fruitful. Both indiscriminate borrowing and excessive concentration on a narrow problem may blind scholars to the limitations of their data. The analyst must vary his approach and expectations according to his material; more elaborate approaches have proved most rewarding in areas where the record is good, not where it is weak.

An instance of this is the elimination of the idea of profit in local trade, an insight based largely on comparisons with economic anthropology, but possible only because there is a large group of texts that give prices and come from the same time and place. Where there is little evidence, all that can be done is to assemble what there is, to abstain from making a judgment until there is more, or to go and look for it.

It may already be clear that the discipline to which I would compare Egyptology is social anthropology. The two also resemble each other in lacking a distinctive body of theory. Apart from kinship theory (our knowledge of Egyptian kinship is almost nil), social anthropologists have tended to derive their theoretical material from elsewhere—from classic sociologists and more recently from ethology, linguistics and semiotics, both of which latter have also influenced Egyptologists.

There is, however, an obvious difference in focus between the two subjects, since most of the primary material of anthropology is completely lost to Egyptology.

The disciplines are comparable, but there is no need to explore the parallels between them more deeply here. What emerges from the comparison is that Egyptologists have seldom made their interpretative assumptions sufficiently explicit, and have tended to sidestep issues of theory, seemingly adhering to the view that any intelligent person should be able to understand the past and that our access to it is directly through its remains.

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in recent years, and my illustration comes from an outstanding recent field discovery which has helped to fill a significant gap in our knowledge.

At the First International Congress of Egyptology in Cairo in October it was resolved that sites in the Nile Delta should be a main objective for excavation, because of increasing destruction of sites by a higher water table and by developments for agriculture and industry.

We are unlikely to experience discoveries in the Nile Delta that immediately alter our perspectives, as did the 15,000 or so third millennium cuneiform tablets discovered at Tell Mardikh in Syria in 1975. But such a programme would welcome focus on settlement and urban life, and on the later periods of Egyptian history, after 1000 BC. These have always been a poor relation in Egyptology, yet they are among the richest in documentation and potential interest.

Among promising fields are literary material in Egyptian demotic, the cursive script from the seventh century BC, studies of economic, legal and administrative texts in demotic, work on the vast body of temple texts and reliefs of the Graeco-Roman period, and the generally denser archaeological record.

This is far less exclusively from the elite than that for the third and second millennia, possibly reflecting changes in the distribution of wealth. Collaboration between Greek papyrologists and demotic scholars is essential for several of these tasks.

The most striking legacy of Egypt is artistic, and the study of art may offer an opportunity to by-pass some of the obstacles of linguistic work. Studies of Egyptian art are of two main types: theoretical work on methods of representation, and the stylistic analysis and ordering of the works themselves. The conventional method of study of exotic art in Egypt applied most notably to sculpture.

There is also iconological study, which combines strictly artistic and broader approaches. There are two fundamental representational studies, which are hard to parallel in other fields: Heinrich Schfer's *Principles of Egyptian Art* and Erik Iversen's *Concepts of Egyptian Art*.

Schfer's book is both an exposition of general aspects of non-perspective representation, and a detailed analysis of a host of Egyptian examples. The conceptual character and precision of form of Egyptian art allow its features to be treated almost as a system of signs, like the formalist analysis of modern elements of ideology, such as making by scale-off works of art and to observe something of the decisions, few of them aesthetic, that determine an artist's compositions.

Schfer's theory and detailed exposition can be criticized in a number of places, but the work remains fundamental, and offers great potential for development. Iversen's book is narrower in scope but almost as significant for the topic: a study of the method of giving the human figure objective accuracy in representation, and ensuring the comprehensibility of its parts.

The iconological study of Egyptian art has not advanced very far; it has probably been restrained by the peculiar combination, especially in large-scale structures, of extremely explicit textual captions to reliefs and a highly enigmatic method of combining them. Erich Wente's discovery of rules determining the form of inscriptional elements in Graeco-Roman temple scenes in their position on the walls, seemingly obscure in itself, has been a major breakthrough.

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John Baines

The author is Queen's professor of Egyptology, Oxford University.

BOOKS

Simulating research

Creative tension

Chemistry and taxonomy

Renaissance reliance on the classical past

Drucelloni's revival of the Italian minuscule for the *Antica e Moderna* Renaissance and with Brunelleschi's influence on the architectural solutions of various centuries. The style "was a reform rather than a revolution" and "reflected the attitude lay behind the reception of Renaissance artists to the world."

"What a vacuous way is it so many years if the shape of a discussion of the shape of the coloration of ink of paper and the coloration of ink," writes Cernigoi. "The language of the language of Nicolli's painting-criticism may apply to school today's Renaissance Combric never to Renaissance Combric." "book to read against the treatment of material and skillful treatment of material and always compelling of which always draws from the authors which always draws from the authors which always draws from the authors."

John Phillipson

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Edited by Christopher Fyfe

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This book was written partly in response to requests from teachers in schools and colleges of education for a text that would help both beginning and practising teachers to operate effectively in multi-racial schools. Its emphasis therefore is on practical guidance for the classroom teacher. Since no book can offer information on practising teachers have indicated would be of most use.

£3.50

Education Paperback £1.50

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BOOKS

Wages of growth

Development Paths in Africa and China
edited by Ukund G. Damuchi, Guy Routh and Abdel-Rahman E. Ali Taha
Macmillan, £10.00
ISBN 0 333 18987 6

In much of Africa, as elsewhere in the Third World, apparently "successful" economic performance in terms of rising per capita output has been accompanied by an increasingly unequal distribution of income as the benefits of growth have failed to trickle down to the poorest people. Production in industrial ventures, often foreign owned, has risen far more rapidly than has employment. The higher wages paid in industry have attracted migrants to towns, concentrating unemployment on urban areas and resulting in the growth of an "informal sector" of petty trading, small-scale services, and simple manufacturing and repair workshops. The employment problem has been exacerbated by rapid population increase.

In the face of similar problems of poverty and employment, China appears to be coping with an exciting originality, developing industrial development to the countryside, reducing rural-urban income differentials, mobilising substantial surpluses for investment at the local level in industry and agriculture, and developing intermediate technology to generate jobs. It is with interest in distribution and employment that the present work presents essays on development in six African countries, together with a single chapter on China.

Between the six African countries there is considerable diversity of experience. Ghana and the Sudan have depended heavily on agricultural exports (cocoa and cotton, respectively) and Zambia, Kenya, and Nigeria were more diversified. Ghana, Nigeria and the Sudan have had major changes in development policies, while political leadership in the others has shown more continuity.

One of the most interesting features of their different experiences is how constraints have been placed on present-day development options by geography and resources and by past policies, both in the colonial and post-independence periods.

In Zambia, Charles Harvey shows

John Thoburn

Occupied China

The Japanese Army in North China 1937-1941
by Lincoln Li
Oxford University Press, £17.50
ISBN 0 19 580269 1

Mr Li has written a scholarly book about the policies of the Japanese army in North China before the outbreak of the Pacific War. His main thesis is that through their numerical weakness, faulty strategy, refusal to trust the Chinese and failure to understand them, the Japanese played an important part in opening the way for communist penetration and eventual domination of the region.

This is a useful study in two respects. It supplements the literature on the Chinese communist movement during the two decades by concentrating on the Japanese contribution to its success. Second, though not so explicitly, the book is a contribution to the discussion on whether or not the occupation can successfully harness the social and economic resources of the occupied territory.

Li very ably describes the effect of the largely futile attempts of the government in Tokyo to control the military authorities in the less well-known areas of the Manchuria between the North China Army, the Kwantung Army in Manchuria, and the Japanese Army in China. In contrast, where so busy fighting among themselves for influence and power as they were against the Chinese.

Given the rivalries and animosities between the Kuomintang and the Chinese communists, not to mention the fluctuating loyalties

how concentration on copper mining (which generates about half of national income, and which was nationalized in 1969) has produced a highly urbanized society, where agriculture is of much less importance compared to other African countries, and where continued dependence on expatriate managers and skilled workers has biased the pattern of demand away from simple labour-intensive products.

In Kenya, a similarly biased demand pattern and uneven income distribution has resulted from a programme of import substitution, and a continuing need to import foreign components and technology has reinforced the pattern. Breaking out of this cycle is difficult. As the essay's author, Frances Stewart, suggests, local elites develop vested interests in the continuation of post-war trends. Industrial workers are not easily to be convinced that their high wages are mere "factor price distortions", and political power may express economic interest. Similarly, redistributions towards the poor and unemployed destroy the demand basis for the particular kind of growth out of which the redistributions are to be made, and the author, although favouring massive shifts of resources towards the "informal sector", is pessimistic about Kenya's ability to develop in isolation from foreign technological and economic influences.

Only in Taiwan, as Guy Routh's essay shows, with its socialist village and (relative) lack of dependence on foreign capital, has development significantly paralleled the Chinese experience. The individual contributions of the other African studies (Nigeria, Ghana and Sudan) have little to say about the applicability of the Chinese model, apart from a brief discussion of Ghana's "Operation Feed Yourself" self-reliance programme. This is a pity, and is not a gap which the editor, by the way, has very briefly introduced. Nevertheless, one may conclude that piecemeal adaptation from China is by no means easy. More labour-intensive methods in industry, and improved technology in agriculture, may reduce inequality while maintaining growth, but major changes which affect distribution are unlikely to be made except in situations where those who gain most from them have some degree of political power.

African bibliography

Volumes 1-16 of the series, *African Bibliography*, are available from Basil Davidson, 10001 Africa Boulevard, C11-001 Basel, Switzerland. The bibliography is extending to include documentation on South and Southern Africa to include Ghana and parts of West Africa covering subjects ranging from African literature to African geography.

Indian villages

Village Studies: Data Analysis, Bibliography, volume 1, 1976, studies programme of the University of Sussex, uses computer techniques to present data on the social and economic life of hundreds of Indian villages. Edited by Chie Labaree, available from Bookers Publications at £15.00.

Reviews

Robin Cohen, senior lecturer in sociology at the University of Birmingham, is editor of the *Journal of African Political Economy*. Dennis Duncanson is reader in South-east Asian studies at the University of Kent; S. E. Finer is Gladstone professor in government and public administration at the University of York; and a fellow of All Souls, J. K. Goldthorpe, author of *African Elite*, is senior lecturer in sociology at the University of Leeds; D. H. Valentine, professor of development at the University of Manchester, is editor of *Township, Planning and Evolution*; Frances Yates, honorary fellow of the Warburg Institute, is editor of *The Imperial War Museum's Last Plays: 1914-1918*.

MIDDLE EAST ANNUAL REVIEW VII

Middle East Annual Review Company Ltd
1976 £8.00

DEVELOPMENT PATHS IN AFRICA AND CHINA

Edited by U. G. Damuchi, Guy Routh and A. R. E. Ali Taha
1976 £10.00

EGYPT IN THE ARAB WORLD: THE ELEMENTS OF FOREIGN POLICY

A. I. Dawisha
1976 £10.00

THE ABORIGINAL TRIBES OF INDIA

Stephen Fuchs
Jan. 1977, about £7.95

THE INDIAN NATIONAL CONGRESS AND THE 1929-1942

B. R. Tomlinson
1976 £12.00

THE SOVIET UNION AND BLACK AFRICA

Christopher Evans
1976 £10.00

SOUTH INDIA: POLITICAL INSTITUTIONS AND POLITICAL CHANGE, 1880-1940

C. J. Baker and D. A. Washbrook
1976 £6.95

For further details please write to Anna Calcutt (Tina), The Macmillan Press, 80, Essex Street, London WC2R 3LP.

WILEY

Classified Advertisements

Index to Appointments Vacant, Wanted and other classifications

Appointments vacant
Universities
Fellowships & Studentships
Polytechnics
Technical Colleges
Colleges and Institutes of Technology
Colleges of Education
Colleges of Further Education

Colleges and Departments of Art
Administration
Overseas
Government
Industry
Adult Education
Librarians
General Vacancies

Appointments wanted
Other classifications
Awards
Announcements
Exhibitions
For Sale and Wanted
Courses
Holidays and Accommodation
Typing and Duplicating

Universities

KENYATTA UNIVERSITY COLLEGE-KENYA

(A constituent college of University of Nairobi)

Applications are invited for the following posts:

(1) PROFESSOR OF LITERATURE

Applicants should be holders of a postgraduate degree, preferably a PhD in Literature, with proven and extensive teaching experience at University level. Appointees will be expected to teach one or more of the following areas: African Oral Literature, Theatre Arts, African Drama and the South African Novel.

(2) LECTURER IN LITERATURE DEPARTMENT

Applicants should have a good postgraduate degree in Literature. Preference will be given to those with professional teaching qualifications and experience. Appointees will be expected to teach one or more of the following areas: African Oral Literature, Theatre Arts, African Drama and the South African Novel.

(3) LECTURER IN LANGUAGES AND LINGUISTICS

Applicants should have a postgraduate degree in Languages. Appointees will be required to teach Communication Skills in English, Language Methodology and other areas within their competence. Experience in running a Language Laboratory would be an advantage.

Kenya University College, Kenya, applicants should send their references to the Registrar, Kenyatta University College, PO Box 4284, Nairobi, Kenya. Applicants should send references to the Registrar, Kenyatta University College, PO Box 4284, Nairobi, Kenya. Applicants should send references to the Registrar, Kenyatta University College, PO Box 4284, Nairobi, Kenya.

KENYATTA UNIVERSITY COLLEGE-KENYA

(A constituent college of University of Nairobi)

Applications are invited for the post of

SENIOR LECTURER/LECTURER

IN THE

BUSINESS EDUCATION DEPARTMENT

Applicants should hold a master's degree in Business Education/ Administration or in Accounting/Economics and must have substantial experience in teaching and research at university level. Preference will be given to those with experience in Business and/or Business Education training of Teachers. Appointees will be expected to teach two or more of the following: Accounting, Economics, Business Statistics, Business Law, Marketing, Finance and Computer Concepts. Kenyatta University College deals with Teacher Education as its major pre-occupation. Experience and qualifications in teacher education are therefore our preference. Lack of which does not necessarily lead to disqualification. All members of the Academic Staff are expected to participate in the supervision of the Teaching Practice, usually conducted for one month during the long vacation.

Salary scales: Senior Lecturer KSh 772 to KSh 800 per annum; Lecturer KSh 600 to KSh 630 per annum (KSh equals £1.44 sterling). The terms of service include subsidised housing, membership of Senior Staff Superannuation Fund or Federated Superannuation Scheme for Universities (where members of staff have been accepted from such membership, the College shall pay to such staff in lieu thereof, gratuity at the rate of 10 per cent of basic salary), and a non-contributory medical scheme. Employees' superannuation are on four each of two years duration renewable, and include passages of up to five (5) adults on appointment, between tours and at the expiry of contract.

Applicants should give three names of Academic Referees and their addresses and at the same time request them to send their references to the Registrar, Kenyatta University College, PO Box 4284, Nairobi, Kenya. Applicants should send references to the Registrar, Kenyatta University College, PO Box 4284, Nairobi, Kenya. Applicants should send references to the Registrar, Kenyatta University College, PO Box 4284, Nairobi, Kenya.

Detailed applications (two copies) including a curriculum vitae and naming three referees should be sent by airmail not later than November 23, 1976, to the Registrar, Kenyatta University College, PO Box 4284, Nairobi, Kenya. Applicants should send references to the Registrar, Kenyatta University College, PO Box 4284, Nairobi, Kenya. Applicants should send references to the Registrar, Kenyatta University College, PO Box 4284, Nairobi, Kenya.

ST. MARY'S HOSPITAL MEDICAL SCHOOL

(University of London)

Applications are invited from graduates for the appointment of

SECRETARY OF THE MEDICAL SCHOOL

Candidates should have wide administrative experience, preferably in a University. The successful candidate will take up the appointment on 1st May, 1977.

Salary, not less than £8,347 p.a. including London Allowance (Grade IV) Superannuation under 1988. Applications should be made, not later than 27th November 1976, to The Dean, St. Mary's Hospital Medical School, Paddington, London W2 1PG, from whom application forms should first be obtained.

UNIVERSITY OF EXETER

Chair of History

Applications are invited for a Chair of History, tabled from 28 September 1977. The appointment is open to specialist in any period other than the sixteenth and seventeenth centuries. Salary will be on the agreed professional range, minimum £7,897; average £9,280 per annum. Further particulars may be obtained from the Academic Registrar & Secretary, University of Exeter, Northcote House, The Queen's Drive, Exeter EX4 4JQ. To whom applications (13 copies, overseas candidates 1 copy) should be forwarded so as to reach him not later than Thursday 9 December 1976. Please quote reference 1/106/3145.

SOCIOLOGY and ANTHROPOLOGY

BRANDON UNIVERSITY. Department of Sociology and Anthropology. POSITION: Chairman. Qualifications required: PhD in social anthropology with research and substantial teaching experience in one or more of the following areas—anthropological theory and method; kinship and family systems; Canadian subcultures; political anthropology. Associate Professor or Full Professor; salary negotiable.

Send application, vita, references and graduate transcripts to: Dr Erasmus D. Monu, Acting Chairman, Department of Sociology and Anthropology, Brandon University, Brandon, Manitoba R7A 6A8. Effective date of appointment: July 1, 1977.

UNIVERSITY OF WESTERN AUSTRALIA

Perth

EDUCATION

Applications are invited for appointment as

LECTURER

In the Department of Education in the field of Educational Psychology from 1st February, 1977, or as soon as possible thereafter. Applicants will be considered from persons with advanced qualifications and experience in educational psychology, with interest in the education of exceptional children, and in the field of department concerned. The salary range for a Lecturer is \$A13,895 to \$A17,688 p.a. Benefits include superannuation similar to PSU, leave to Perth for appointment and dependent family removal allowance, study leave, long service leave and housing loan scheme. Applications in duplicate stating full personal particulars, qualifications and experience should be sent to the Registrar, University of Western Australia, Nedlands, Western Australia, 6009, by 27 November, 1976. Candidates should submit three references with applications close on January 14, 1977.

UNIVERSITY OF SYDNEY

HENRY BERTIE and FLORENCE MABEL GRITTON

RESEARCH SCHOLARSHIP

SENIOR GRADE

Applications are invited from graduates of any university within the Commonwealth who are graduates of any university who are British subjects. Candidates are expected to have higher degree or postgraduate research experience. The Scholarship, tenable in the University of Sydney, is available for research in Geography related to Industry and Agriculture. Applicants should discuss their proposed research project with the Head of Department concerned. The Scholarship at senior level is valued at \$A12,000 to \$A12,349 and is tenable for one year but may be renewed for a second. Application for assistance towards travel costs will be considered. Application forms are available from the Registrar, the University of Sydney, NSW 2006, Australia, with whom applications close on January 14, 1977.

Medical Anthropology Unit

Aberdeen

RESEARCH SOCIOLOGIST

Applications are invited for the post of Research Sociologist. The person appointed will join a small research team to study the social structure of the medical and community management of non-acute illness. Applicants should be between 20 and 35 years of age with a good Honours Degree in Sociology or Social Science (or related field) and at least 3 years' relevant postgraduate experience. A limited-term appointment for 5 years will be made, leading possibly to a permanent appointment. Salary on scale up to £8,456 a year, subject to age, qualifications and experience. Contributions to Superannuation Scheme. Further particulars may be obtained from Professor Raymond Hiley, MRC Medical Sociology Unit, Medical Sociology Unit, 26 Gordon Square, London WC1H 0AP, to whom applications should be sent by December 1, 1976.

AUSTRALIA UNIVERSITY OF NEW SOUTH WALES

Department of Psychology

ASSOCIATE PROFESSOR

Applications for this post should be experienced in teaching and research in the field of Social Psychology. The successful candidate will be expected to have a PhD in Social Psychology and to have published research in the field of Social Psychology. The salary range for an Associate Professor is \$A12,000 to \$A12,349 and is tenable for one year but may be renewed for a second. Application for assistance towards travel costs will be considered. Application forms are available from the Registrar, the University of New South Wales, Kensington, NSW 2052, Australia, with whom applications close on January 14, 1977.

Polytechnics continued

KINGSTON POLYTECHNIC

(School of Surveying)

Lecturer II/Senior Lecturer

A chartered quantity surveyor is required to teach on degree and degree-level courses.
A special interest in Building Construction and Services an advantage.
Salary range L11/SL. C3,888-£7,028 inc. of London allowance.

Further details and application forms from Appointments Officer, Kingston Polytechnic, Penrhyn Road, Kingston upon Thames KT1 2EE. 01-549 1366.
(re-advertisement)

BRIGHTON POLYTECHNIC RESEARCH FELLOW

Applications, male or female, are invited for the above appointment in either the department of APPLIED PHYSICS or the department of PHARMACY. The fields of research offered are in Applied Solid State Physics or any sector of Pharmaceutical Sciences.

The appointment is for a period of two years and the salary is within the scale £3,285 to £3,581.
Application forms and further details may be obtained from the Personnel Officer, Brighton Polytechnic, Moulsecomb, Brighton BN2 4QJ. Telephone: 0273-57300. Return date: November 22, 1976.

LONDON, S.E.18
THAMES POLYTECHNIC
SCHOOL OF ARCHITECTURE
ARCHITECTURAL HISTORIAN
The School of Architecture invites applications from qualified architectural historians to teach architectural history on degree and degree-level courses. A research degree and good knowledge of English and European languages will be an advantage.
The person appointed will be responsible for the teaching of architectural history and will also be responsible for the supervision of students on the M.A. in Architectural History. The person appointed will be responsible for the teaching of architectural history and will also be responsible for the supervision of students on the M.A. in Architectural History.
Further particulars and form of application may be obtained from the Personnel Officer, Thames Polytechnic, Watlington Street, London S.E.18 6PU. To whom completed applications should be returned by 10th November, 1976.

SHEFFIELD
CITY POLYTECHNIC
DEPARTMENT OF BIOLOGICAL SCIENCES
RESEARCH ASSISTANT
The Department of Biological Sciences is looking for an experienced research assistant to assist in the production and distribution of biological specimens.
The successful candidate will be responsible for the production and distribution of biological specimens.
Further details and application forms may be obtained from the Personnel Officer, City Polytechnic, Sheffield Hallam University, Sheffield S1 1WB. To whom completed applications should be returned by 10th November, 1976.

SCOTTISH LIBRARIES
CO-OPERATIVE
SYSTEMS ANALYST
The Scottish Libraries Co-operative is looking for a Systems Analyst to assist in the development and implementation of library systems.
The successful candidate will be responsible for the development and implementation of library systems.
Further details and application forms may be obtained from the Personnel Officer, Scottish Libraries Co-operative, Glasgow G1 1AA. To whom completed applications should be returned by 10th November, 1976.

LONDON
THAMES POLYTECHNIC
SCHOOL OF ARCHITECTURE
ARCHITECTURAL HISTORIAN
The School of Architecture invites applications from qualified architectural historians to teach architectural history on degree and degree-level courses. A research degree and good knowledge of English and European languages will be an advantage.
The person appointed will be responsible for the teaching of architectural history and will also be responsible for the supervision of students on the M.A. in Architectural History. The person appointed will be responsible for the teaching of architectural history and will also be responsible for the supervision of students on the M.A. in Architectural History.
Further particulars and form of application may be obtained from the Personnel Officer, Thames Polytechnic, Watlington Street, London S.E.18 6PU. To whom completed applications should be returned by 10th November, 1976.

PRESTON
THE POLYTECHNIC
Applications are invited for the post of SENIOR LECTURER IN PSYCHOLOGY.
The person appointed will be responsible for the teaching of psychology on degree and degree-level courses. A research degree and good knowledge of English and European languages will be an advantage.
Further particulars and form of application may be obtained from the Personnel Officer, Preston Polytechnic, Watlington Street, Preston PR1 2YU. To whom completed applications should be returned by 10th November, 1976.

LINCOLN
THE POLYTECHNIC
SCHOOL OF ARCHITECTURE
ARCHITECTURAL HISTORIAN
The School of Architecture invites applications from qualified architectural historians to teach architectural history on degree and degree-level courses. A research degree and good knowledge of English and European languages will be an advantage.
The person appointed will be responsible for the teaching of architectural history and will also be responsible for the supervision of students on the M.A. in Architectural History. The person appointed will be responsible for the teaching of architectural history and will also be responsible for the supervision of students on the M.A. in Architectural History.
Further particulars and form of application may be obtained from the Personnel Officer, Lincoln Polytechnic, Watlington Street, Lincoln LN6 9PU. To whom completed applications should be returned by 10th November, 1976.

WOLVERHAMPTON
BILTON COLLEGE OF FURTHER EDUCATION
The Bilton College of Further Education is looking for a Lecturer in Education to teach on degree and degree-level courses. A research degree and good knowledge of English and European languages will be an advantage.
The person appointed will be responsible for the teaching of education on degree and degree-level courses. A research degree and good knowledge of English and European languages will be an advantage.
Further details and application forms may be obtained from the Personnel Officer, Bilton College of Further Education, Wolverhampton WV4 6SR. To whom completed applications should be returned by 10th November, 1976.

Colleges and Institutes of Technology

EALING Technical College

Specialist Centre for Higher Education

Lecturer in Accounting/Finance

Candidates should have high academic qualifications with business experience desirable. The person appointed would be expected to contribute to the development of teaching in at least one of the following areas:—
Undergraduate Programmes
Final Professional Work
Post Experience Management Courses

Lecturer in Economics

Applications are invited from good honours graduates who should have a good general background in economics and be interested in teaching the subject on a range of management, business studies and professional courses, at undergraduate and post experience level including a contribution to multidisciplinary units. A knowledge of industrial, managerial or financial economics would be an advantage, as would business and/or teaching experience.
Both the above posts are in the School of Management. Appointments will be made at either L1/1 or L1/1 level according to qualifications and experience and will date from 1 January, 1977, or as soon as possible thereafter.

Research Assistant in Business History

Required to undertake a source investigation project into the origins of firms in a local area of London. The post is for one year, 1977, for one year, with possibility of extension. Salary will be within the L1 range.
Salary: L1/1 £2,071-£4,779, L1/1 £3,681-£5,895. Inclusive of London Allowance, plus £312 salary supplement.
Application forms and further details from The Registrar (Room 17), Ealing Technical College, St. Mary's Road, London W5 5RF (addressed footscap envelope please). Tel.: 01-579 4111 ext. 287.
Closing date: 19 November, 1976.

Ealing EDUCATION SERVICE

Colleges of Art

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£5,500-£7,500
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COURSE DIRECTOR/TUTOR
trained in the craft of furniture making and experienced in design and craft education, to run the intensive two-year residential course at a historic house in a beautiful part of Dorset. Please write for further details to John Makepeace, F.S.I.A.D., Farnham House, Beaminster, Dorset.

Fellowships and Studentships continued

OXFORD NEW COLLEGE

Applications are invited for the post of Lecturer in Education to teach on degree and degree-level courses. A research degree and good knowledge of English and European languages will be an advantage.
The person appointed will be responsible for the teaching of education on degree and degree-level courses. A research degree and good knowledge of English and European languages will be an advantage.
Further details and application forms may be obtained from the Personnel Officer, Oxford New College, Oxford OX1 2JG. To whom completed applications should be returned by 10th November, 1976.

Colleges of Education

BIRMINGHAM WESTBULL COLLEGE OF EDUCATION

Applications are invited for the post of Lecturer in Education to teach on degree and degree-level courses. A research degree and good knowledge of English and European languages will be an advantage.
The person appointed will be responsible for the teaching of education on degree and degree-level courses. A research degree and good knowledge of English and European languages will be an advantage.
Further details and application forms may be obtained from the Personnel Officer, Westbull College of Education, Birmingham B15 2TT. To whom completed applications should be returned by 10th November, 1976.

Colleges of Higher Education



LECTURER GRADE II (BIOLOGY)

Applications are invited from well-qualified men and women for the post of Lecturer Grade II in Biology in the (1,600 men and women). The appointment is from June 1, 1977, or as soon after as possible. The College, which was formed in 1975 through the amalgamation of the College of Ripon and St John's College, York, offers career opportunities in Higher Education, the Postgraduate College of Education, the D.E.A. and the B.A. (C) College of Education of the University of Leeds. Candidates should be capable of teaching aspects of Biology at all levels within an honours degree programme. Experience in this subject with a strong ecological interest would be an advantage. Applicants must not themselves have been employed in the teaching of Biology in schools for a significant number of students taking Biology courses at school level. Teachers or lecturers in in-service education should have a lively interest in appropriate aspects of Biology.

The appointment will be at Lecturer Grade II (L2) (£3,275 plus £312 to £5,493 plus £312). Further details and application forms may be obtained from the Registrar, The College of Ripon and St John, Watling Street, York YO3 7EX, to whom completed applications should be returned to arrive not later than 10th November 22, 1976.

Administration

SCHOOLS COUNCIL FIELD OFFICER APPOINTMENTS

A vacancy, to be filled from 1st May, 1977 (or September if the earlier date not possible) will be in the Council's field officer team. Applicants are invited from head teachers and others with experience of teaching and of senior responsibility in schools, colleges, and from those with immediate responsibility as LEA advisers. The selected applicant to work in an area which includes Morayshire, Great Manchester, Cheshire, Salop, Lancashire, 18th of Men.

Field Officers help to forward curriculum development in schools, teachers' centres, colleges of education, and local education authorities. They work with the committees and projects of the Council and the work spans the whole of the educational field. Applicants for these key posts should have experience of curriculum development in the classroom and an active interest in the work of teachers' centres.

Subject to the agreement of present employers, field officers are appointed on secondment to the Council on full existing salary plus an allowance of £250 per annum for a period of two years. There is a possible extension to three or four years. They are normally based on their homes.

Further information and application forms may be obtained from Mr. A. Marshall, Schools Council, 1st Floor, Great Portland Street, London W1N 6LL Tel. 01-58 0352, ext. 351. Closing date for receipt of applications is Friday, 26th November, 1976. It is hoped that the interviews will take place in mid-January.

COUNTY OF AVON CHIEF EDUCATION OFFICER

Salary scale: £12,411 x £294 (3) - £13,293
This post falls vacant on 1st January, 1977. Applicants should be graduates or hold an equivalent qualification. In addition to teaching experience, applicants should have held senior management responsibility in the education field and preferably have had formal training in management.

Further details and application forms, returnable by 20th November, from Director of Personnel (Tel. Bristol 238541), Avon House, The Haymarket, Bristol BS99 7DE.

ASSISTANT PROGRAMME DIRECTOR

(L11/SL)

Applications are invited for the post of Assistant Programme Director in the Department of Education. The person appointed will be responsible for the development and implementation of the department's programmes. A research degree and good knowledge of English and European languages will be an advantage.
Further details and application forms may be obtained from the Personnel Officer, Department of Education, London W1A 1AA. To whom completed applications should be returned by 10th November, 1976.

Courses

COLOUR SCENARIO LINE

It doesn't matter whether Ashton, Mahler, Klee, Pinter or Lawrence rings the loudest bell
—there could be a place for you on our B.A. (Hons.) Creative Arts

Now for the first time in this country, a CNA Course which gives young dancers, musicians, actors, writers and poets a unique opportunity to work together in exploring the relationship between the Arts.
Ideally you should have 2 A Levels, but if you can demonstrate a positive talent and have a genuine enthusiasm for exploring the interrelationships of art forms, there may still be a place for you.
The course is of three years duration, and in your first year you would major in two of the following options: Dance, Music, Drama, Visual Arts, Creative Writing.
After your first year you would have the opportunity for a positive specialisation.
We are able to offer accommodation and the chance to study in a most beautiful and historic building.
So, whether you're just embarking on a creative career or have several years as a professional under your belt, contact The Academic Registrar, CNA & Alister College, Crows Road, Crows, CV11 1JL.

Crows-Alister College 0263 211111

Overseas



Training Officer—Nutrition

Ministry of Rural Development

K416-K5700 (c. £312-£4275)

Supplement up to £224 (married), £160 (single).

Together with most other countries, Zambia has recently been affected by the worldwide economic recession. Now our economy is surging forward strongly again, revitalised partly by significant advances in the country's agricultural industry and rising copper prices on world markets. Come here on a 3-year contract and your skills will be welcomed and broadened. You'll enjoy the warm, pleasant climate in this totally landlocked country, larger than France, Belgium, the Netherlands and Switzerland combined. You'll enjoy the scenery too! Although mainly a broad plateau, Zambia also features spectacular mountains, a certain amount of dense forest, imposing rivers, vast lakes and extensive game reserves. Its many large cities and towns contain all the normal modern facilities and are linked by excellent roads and rail services.

Requirements:

Diploma in Nutrition or Home Economics and considerable Diploma-level teaching experience.

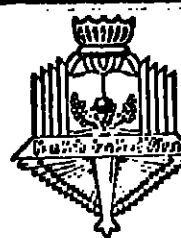
Responsibilities:
Lecturing/conducting practical classes in at least 2 of the principles and practice of nutrition; food science and preparation; public health and child care.

Strong financial attractions

As well as the salary quoted, you will enjoy TAX-FREE supplements, a TAX-FREE terminal gratuity, low-cost accommodation, low taxation and free passages. Together, these add up to exceptional real earnings. Starting salaries relate to qualifications/experience, while gratuities total 25% of basic salary. Salary-related supplements are reviewed annually and paid by the British Government to qualified British nationals (annual maximum is shown), medical aid assistance is also provided for those receiving supplements. N.B. Starting equivalents given are approximate only due to constant exchange rate fluctuations.

For further information please send full personal/professional details (without obligation) in confidence to: Recruiting Officer (Room 11), Zambia High Commission, 7-11 Cavendish Place, London, W1V.

ZAMBIA



PRINCIPAL/SENIOR LECTURER IN EARLY CHILDHOOD EDUCATION

Applications are invited for the above post from candidates with outstanding qualifications and expertise in Early Childhood Education. The successful candidate will be required to accept major responsibility for the academic and professional development of this area of education in the College, and for a number of academic staff associated with this work.

Salary Range:
Principal Lecturer \$A22,078-\$A22,782
Senior Lecturer \$A18,034-\$A20,928

Applicants should include in their curriculum vitae:
a) academic qualifications in detail, with dates.
b) relevant professional experience.
c) teaching/lecturing experience.
d) names and addresses of three referees, well acquainted with the applicant's qualifications and/or professional work.

Further information may be obtained by contacting:
The Secretary,
Armfield College of Advanced Education,
Mossman Street, ARMIDALE, N.S.W. 2350
Australia

Applications close on Monday, 22nd November, 1976, and should be addressed to the Secretary.

PRESTON INSTITUTE of TECHNOLOGY

Plenty Road, Bundoora, 3083, Victoria, AUSTRALIA.

SCHOOL OF ART & DESIGN (Reference 202)

PRINCIPAL LECTURER HEAD OF DEPARTMENT GRAPHIC DESIGN/PHOTOGRAPHY

Applications are invited from suitably qualified persons. The appointee will be responsible for the further development of the department and to assist the head of school in policy and administrative areas, according to the person's qualifications and experience.
The school is presently developing courses in the communicative arts centred in the Design process. The appointee will be responsible for developing these courses, integrating video, film, sound, photography and graphic design media suitable for its multidisciplinary Visual Arts Degree program.
The appointee will be required to teach, administer and develop courses suitable to Art Diploma, Design Diploma and Degree level students.
The successful applicant would be expected to commence duties early in 1977.
A curriculum vitae should be enclosed together with the application.

SALARY SCALE:
The salary is in AS \$14,000.
CLOSING DATE:
Applications close on 26th November, 1976.
Further information, together with terms of appointment and details regarding the School of Art & Design, may be obtained from the Staffing Officer, Preston Institute of Technology, Plenty Road, Bundoora, 3083, Australia.

SOUTH AUSTRALIAN INSTITUTE OF TECHNOLOGY

HEAD OF ARCHITECTURE

Applications are invited for appointment as Head of Architecture within the School of Architecture and Building.
The multi-disciplinary School of Architecture and Building is responsible for providing courses at Degree, Diploma and Graduate Diploma level in the disciplines of Architecture, Building Technology, Planning and Interior Design. Service subjects are also provided to other Institute courses.

The Head of Architecture will have specific responsibility for providing academic leadership in the development and presentation of courses in Architecture. Following the appointment of the Head of Architecture, a person will be selected from the Heads of disciplines of Architecture, Building Technology, and Planning to act as administrative head of the School, in the first instance, for a 3 year period.

Applicants should possess appropriate academic qualifications and have had considerable experience as a practising Architect.

Annual Salary (Australian):
\$22,782 (University Reader level) or
\$26,545 (Professorial level)
according to qualifications and experience.

Application forms, conditions of service, and further information may be obtained from the Personnel Officer, Institute of Technology, North Terrace, Adelaide, South Australia, 5000, to whom applications including names and addresses of three referees should be forwarded by 30th November, 1976.

The British Council

invites applications for the following posts:

Adviser in In-Service Education of Teachers of English (Afghanistan)

Adviser in Pre-Service Education of Teachers of English (Afghanistan)

Ministry of Education Curriculum Textbooks Project, Kabul.

Candidates must have a postgraduate linguistics qualification and appropriate EFL experience.
Salary: £5,001-£6,845 p.a.
Benefits: overseas and children's allowances; free furnished accommodation. Two-year contract, renewable.
76 AB 18-19

Lector in English (Yugoslavia)

University of Novi Sad—Tenable January 1977.

Arts degree, preferably in English; postgraduate TEFL qualification and relevant teaching experience essential. Single candidates only.
Salary: 5,040 ND per month (approx. £140 at present exchange rate) plus annual sterling subsidy of £1,191. Benefits: employer's portion of superannuation; medical treatment. Contract 9 months' initially, renewable.
76 SU 120

Return fares are paid. Local contracts are guaranteed by the British Council.

Please write, briefly stating qualifications and length of appropriate experience; quoting relevant reference number and title of post for further details and an application form to The British Council (Appointments), 65 Davies Street, London W1V 2AA.

Awards

EDUCATIONAL DEVELOPMENT AWARDS

Ministry of Overseas Development

The Ministry of Overseas Development is offering a small number of awards, to enable study and investigative work into problems of education in developing countries and to enlarge the experience of those from Britain who are employed in this field. The duration of the awards will be from six months to two years. Consideration will be given to an applicant wishing to work for a higher degree. The period of study should be followed by employment (with the applicant's existing employer or elsewhere) in an area of education related to the study. Applicants should preferably be senior teachers or educational specialists normally between the ages of 25 and 45 who have experience overseas and have worked in such fields as:
1 The planning of education
2 Administration of education including the running of schools
3 The education and training of teachers
4 Curriculum renewal
5 The use of new media
6 Non-formal education and communication in the field of social education
7 Technical education including industrial training and management development
The closing date for receipt of applications for the academic year 1977/78 is March 1, 1977.
Further details will be supplied on application to Room A220, Ministry of Overseas Development, Strand House, Strand, London WC2R 0ET. Tel. 01-571 2000. Fax 01-571 2001.

ENTHUSIASTIC

BIOCHEMIST/BIOLOGIST

(P.H.D.) 26, with industrial and limited teaching experience, seeks opportunity to command a 4-6 level upwards. Ideas for personal botanical research. Write: Box 2083, The Times, London W1V 0BZ.

Appointments Wanted

LECTURER

MODERN
TRIPOLI
Teaching in Libya, need your teaching experience. Write: Box 2083, The Times, London W1V 0BZ.

MALE GRADUATE, 31

B.A. and D.Phil. in Modern History. Seeking research position. Write: Box 2083, The Times, London W1V 0BZ.

SOUTHAMPTON THE UNIVERSITY

UNIVERSITY LIBRARIAN
Applications are invited for the post of Librarian who will be responsible for the running of the library. Write: Box 2083, The Times, London W1V 0BZ.

Further particulars may be obtained from the Secretary of the University of Southampton, 900 GWH, and applications should be sent to the Librarian, University of Southampton, 900 GWH, and applications should be sent to the Librarian, University of Southampton, 900 GWH.